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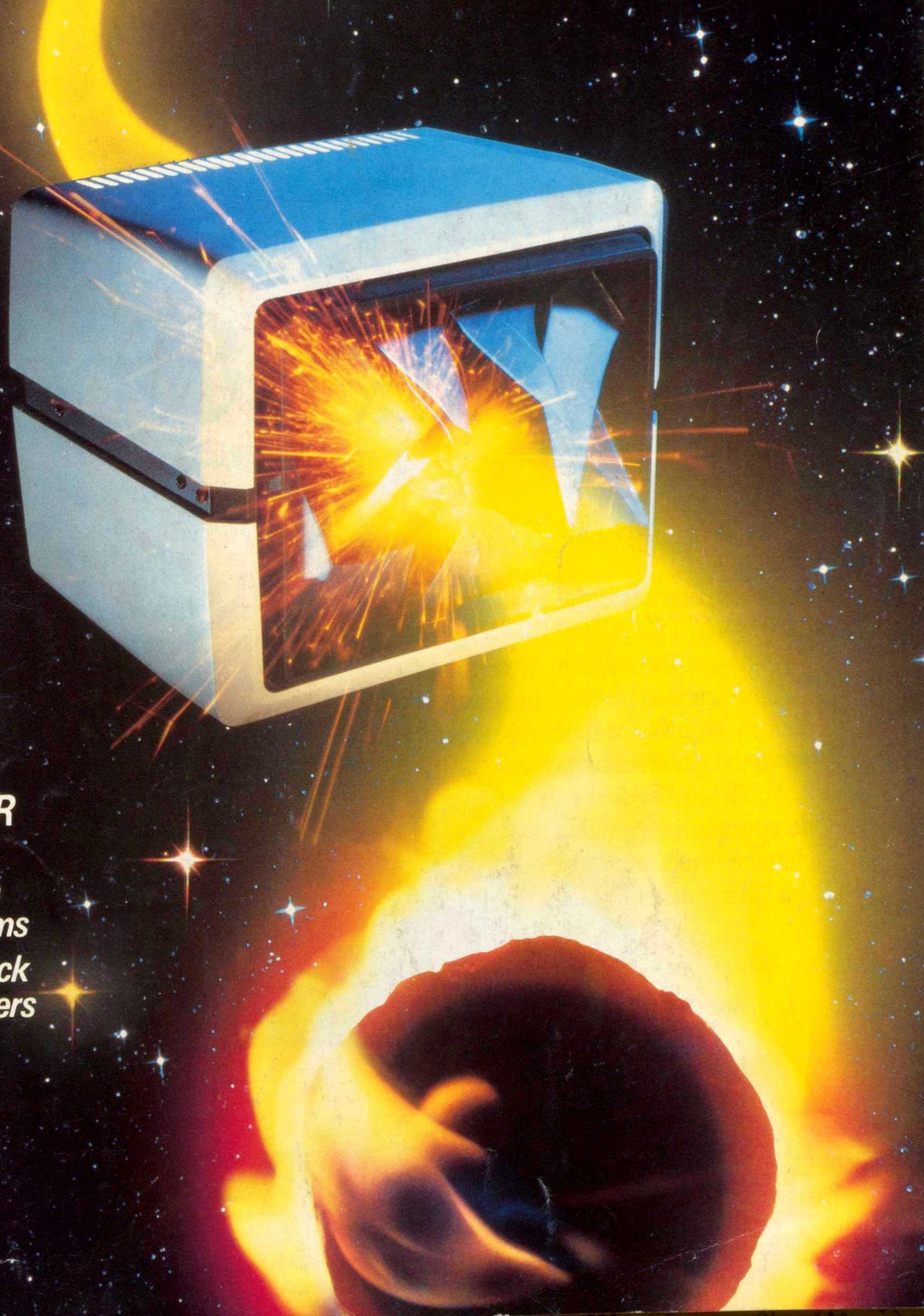

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AUGUST, 1985

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Ultimate Adventures: The Development Race Is On
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TAKING COMPUTER ART SERIOUSLY
BOYS OF SUMMER SPECTACULAR

About Our Cover
The Halley Project *puts the solar system on your monitor—comets included.*

Cover Photography:
Dan Muro

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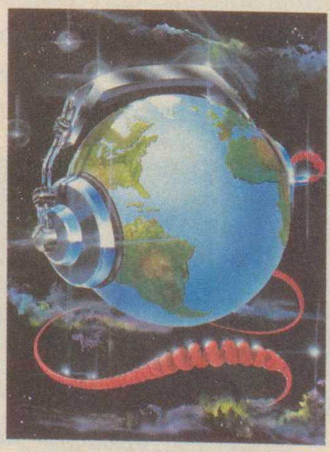

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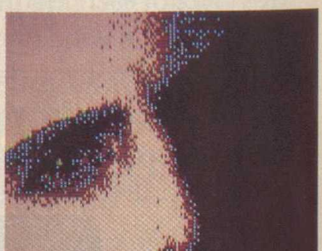

YOUR FAVORITE BAT, A BRAND NEW BALL AND DAVE WINFIELD'S BATTER UP!

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With Dave Winfield's new three part computer coaching package, you're well equipped for winning play.

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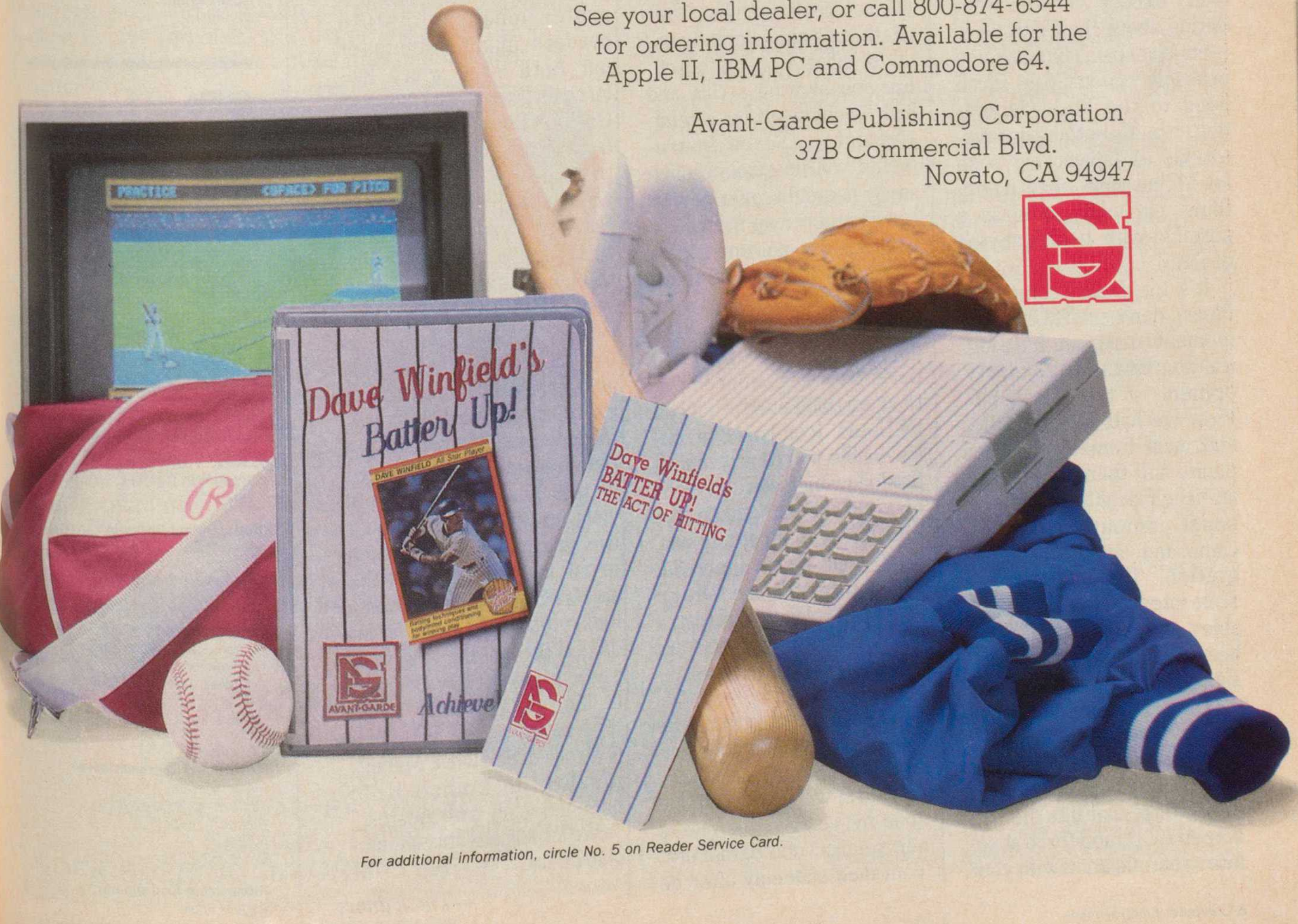
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On~Line

Beach Computers

By the time this issue reaches your suntan-oil-stained hands, you'll be safely nuzzled in a beach towel, a cool breeze wafting through your hair. If you're anything like the computerphile that we suspect you are, your mind is not exactly preoccupied with deep thoughts about looming technology. No indeed, we didn't expect you'd be wondering about the Sixth Generation, especially since you probably haven't paid much heed to the Fifth Generation. No, it's nothing so mysterious as Japan's big push for AI Software, nor is it anything as avant garde as a portable with 10 megabytes of RAM.

It's the beach computer. Please don't scoff. Give us a moment to explain. It's a logical step in the linear development of the microchip. First we had vacuum tubes and main frames, and then minis, and then superminis, and then desktops, or personal computers. Microchips and large scale integration. Then very large scale integration. Then portables and laps. So why not beach computers for exclusive use during the summer?

The beach computer is unlike any other machine on the market. It is notable in its ergonomics, which feature a swivel base that tilts the flatscreen LCD monitor in absolute syncronization with your beach chair. If you lean back to catch a better angle, it will lean toward you. It has a special RS-232 port with an interface cable that plugs into your boom box, in case your batteries run low. It comes complete with a tube of Number 5 sun screen protection so you can get a burn while you burn in your monitor. Open architecture so you can replace chips. After all, there's an unlimited supply of silicate on the beach. Imagine blowing a chip and just reaching out for a semiconductor. Texas Instruments will be quaking once savvy users discover how to service their own machines.

Of course, no computer is worth anything unless there is good software to go with it. The beach computer comes with an integrated package more impressive than anything ever produced by Lotus. Icon-based graphics enable you to accomplish the following tasks at the roll of your mouse: shake the sand out of your bathing suit, plant your beach umbrella, and shoot down those low-flying planes that carry ads begging you to buy things you already have.

Last month's cover, the snappy shot of the model enjoying his flight simulator software, will be the last one done by Tom Weihs, one of our regular photographers. Tom died suddenly after he finished shooting it. It's a loss that will be difficult to overcome. In a business where egos fly high and there's constant pressure to produce quality work under deadline, Tom was a wonderful person to work with. There are lots of good photographers around, to be sure, but none had Tom's even temperament and cool professionalism. Astute readers might remember our April issue which featured Douglas Adams (*Hitchhiker's Guide to the Galaxy*) standing out there in the middle of the cosmos. It was Weihs' handiwork, naturally, that put the finishing touch to the cover. We remember that studio visit well. Tom had spent some two hours moving Adams into every possible pose with an almost infinite number of expressions. We didn't know there were so many ways to thumb a ride. What amazed us was how much he loved what he was doing. No shot was too mundane, too much to ask for. If he thought the art director or editors had a lousy idea, he politely indulged us and allowed us to see for ourselves why it didn't work. Even when the session ended, he shot a few rolls of film while Managing Editor Louise Kohl hammed it up with Adams.

We've already missed him quite a lot.

—The Editors

computer ENTERTAINMENT
Volume Three, Number Eight
August, 1985

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Resolved at Last!

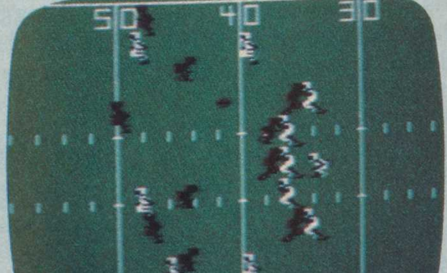
The Greatest Super Bowl Team of All Time!

(FOR US TO KNOW
. . . AND **YOU** TO FIND OUT!)

Find out for yourself which football team was the best ever. Find out who were the really best coaches . . . and who were the bums. Find out who were best under pressure. Was it the Colts' Johnny Unitas, Joe Theismann and the Redskins or the Jets' Joe Namath, or maybe it was Packer coach Vince Lombardi who made the difference after all? Super Bowl Sunday sets the stage for YOU to take control.

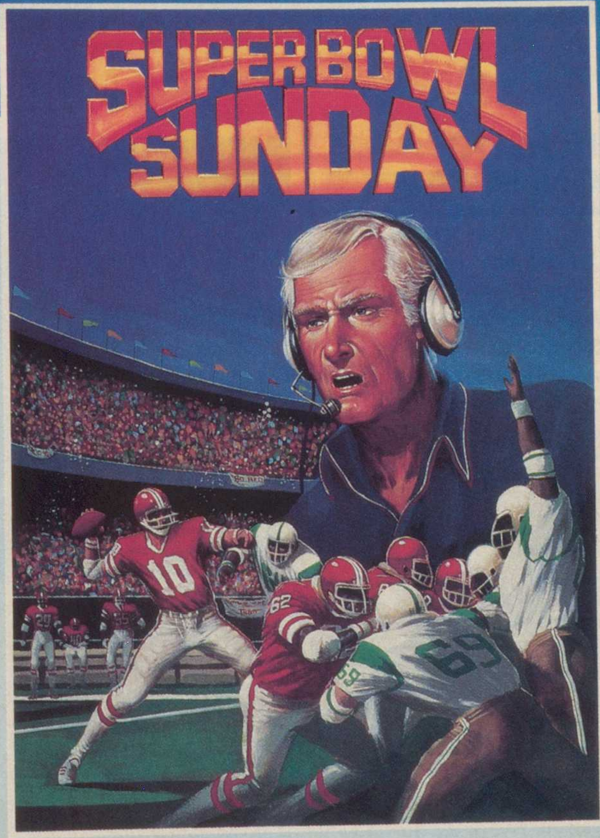
Now YOU Get that Chance!
Super Bowl Sunday gives you the 20 greatest Super Bowl teams of all time, computer analyzed to perform with proper guidance, just as in real life. In Super Bowl Sunday you can match up any team against any other regardless of year . . . here's your chance to resolve once and for all who the best of the best really is.

Three Modes of Play!
Super Bowl Sunday is really 3 games in one; you can play head-to-head against another live opponent in the 2-player version . . . or play solitaire against the computer programmed to react to your strategy . . . or set the computer on autoplay and watch the computer play against itself. Regardless of which version, you will be amazed at the graphics. This is the only statistically authentic game to give you all 22 players on the screen at once going through the actual play in animated action.



Full-screen re-enactment of all your plays!

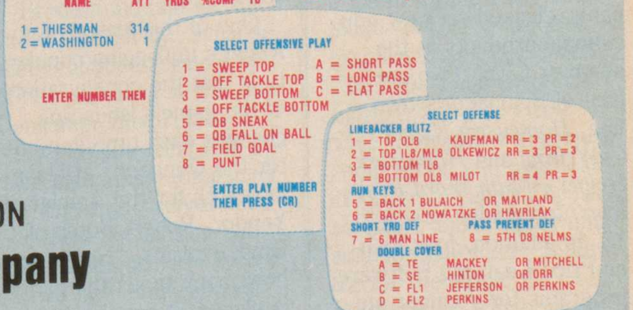
The Greatest Super Bowl Team is . . .
We're not giving away any secrets—just set your game on autoplay and you might get the answer. But, if you think you're a coaching genius, by playing the other versions you might change history after all.
Super Bowl Sunday is ready to run on your Commodore® 64, with one disk drive (joystick optional). **Season disks (where you can re-create an entire season) also available separately.**



Here's Everything You Get:

- ★ **20 Super Bowl Teams** including all the players' names and positions (press the "L" key and you see the strengths of each offensive vs defensive matchup based on seasonal performances).
- ★ More than a dozen **offensive and defensive plays** to choose, giving YOU control over players.
- ★ Individual players' performances and statistics are updated throughout the game. You can view them during and after the game on your screen or keep permanent records using the printer option.
- ★ Your brilliant play re-enacted by **all 22 players** on the screen.
- ★ **Three modes of play:** head-to-head, solitaire and autoplay.

All the statistics for 20 Super Bowl Teams!



```
ENTER QUARTERBACK

NAME            ATT  YRDS  %COMP  TD

1 = THIESMAN    314
2 = WASHINGTON    1

ENTER NUMBER THEN
```

```
SELECT OFFENSIVE PLAY

1 = SWEEP TOP          A = SHORT PASS
2 = OFF TACKLE TOP     B = LONG PASS
3 = SWEEP BOTTOM       C = FLAT PASS
4 = OFF TACKLE BOTTOM
5 = QB SNEAK
6 = QB FALL ON BALL
7 = FIELD GOAL
8 = PUNT

ENTER PLAY NUMBER
THEN PRESS (CR)
```

```
              SELECT DEFENSE
LINEBACKER BLITZ
1 = TOP OL8       KAUFMAN   RR = 3  PR = 2
2 = TOP IL8/ML8 OLKEWICZ  RR = 3  PR = 3
3 = BOTTOM IL8
4 = BOTTOM OL8  MILOT     RR = 4  PR = 3
RUN KEYS
5 = BACK 1 BULAICH    OR MAITLAND
6 = BACK 2 NOWATZKE  OR HAVRILAK
SHORT YRD DEF          PASS PREVENT DEF
7 = 6 MAN LINE         8 = 5TH DB NELMS
    DOUBLE COVER
    A = TE    MACKEY      OR MITCHELL
    B = SE    HINTON      OR ORR
    C = FL1   JEFFERSON   OR PERKINS
    D = FL2   PERKINS
```

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Bulletin Board

Notes from the Neighborhood

WHO YOU GONNA CALL?

QuestBusters! Serious adventurers now have their own monthly newsletter featuring articles, reviews, tips, and a bulletin-board-style column called "Waiting for Duffy," with notes like "I can help anyone with *Zork I*—free!" And "I will give $5 to the first person who tells me how to finish the second scenario in *Wizardry*. I already have the armor and the sword."

Editor Shay Addams and "Still Lost in the Maze in *Zork I* Editor" G. Moore write all the articles on a Macintosh. The final product is typeset from the Mac and printed on legal-size colored paper. A year's subscription costs $15, and a single issue costs two dollars. Write:
The Addams Expedition,
202 Elgin Court, Wayne,
PA 19087.

FALSE RUMOR

Rumors of Spinnaker's withdrawal from the educational software market were greatly exaggerated—as Mark Twain might have said. In fact, the company released six new educational products at the summer CES. Two are part of Spinnaker's own line, *Homework Helper—Writing* and *Homework Helper—Math Word Problems*, for grades seven to 12. In addition, four Fisher-Price Learning Software programs for younger students were also announced, all based on well-loved children's classics. The Fisher-Price programs are *Prokofiev's Peter and the Wolf Music*; *Jungle Book Reading*, based on the Kipling classic; *First Man in the Moon Math*, based on the H.G. Wells book; and *Peter Rabbit Reading*, straight from the tales of Beatrix Potter.

MUSIC
READING
Fisher-Price

A ROGUE IN THE HAND

Perhaps the most popular computer game never to appear on a monitor near you, *Rogue* has been a solid hit on college mainframes for some time (see "Be a Rogue Scholar," CE, July). Now Epyx has brought this role-playing strategy game home for IBM PC owners. (A Macintosh version is also in the works.)

One of the reasons for *Rogue*'s unflagging popularity is that the configuration of the game's landscape changes each time you enter the Dungeons of Doom in search for the Amulet of Yendor. Robert Botch of Epyx explains, "No matter how many times the game is played, it never repeats itself."

The home version has a couple of advantages over its progenitor: a fast-play option and a save-game feature. Not to mention you don't have to matriculate to get your hands on a copy.

GIVE MY REGARDS TO...

The player piano, which has survived the advent of the phonograph and the ghetto blaster, doesn't appear to be endangered by the computer era either. QRS Music Rolls, Inc. of Buffalo, NY is going electronic with a computer-based production and arrangement system to put out their player piano music rolls.

Flex Klempka, working with a programmer to interface the old punch machines with QRS's Apple IIes and II+, found they had to expand to 128K to fit some of the longer rolls. "*Man of La Mancha*, a 16-minute score, is pretty near 70 feet long. It has a marimba arrangement with many repeating notes. It took tons of on-off signals and a lot of space," Klempka says.

In the past music rolls have been reproduced from heavy paper master rolls. A punch machine passes through the master's perforated holes to make a duplicate on thinner paper. The problem is that the master wears out quickly. With a computer the perforated hole sequence is all on disk.

Arranging the music for keyboards will also be done on the computer, eliminating two more traditional tools of player piano production—the exacto knife and scotch tape, that an arranger uses to piece together rolls.

QRS president Ramsi Tick says modern pop music is what keeps the company going. QRS has just released "We Are The World" and has plans to produce Michael Jackson's *Beat It* and *Billie Jean* for player pianos. QRS also has plans to produce disks that will interface with MIDI computer music systems to play their entire line.

BUT WHAT IF I SNEEZE?

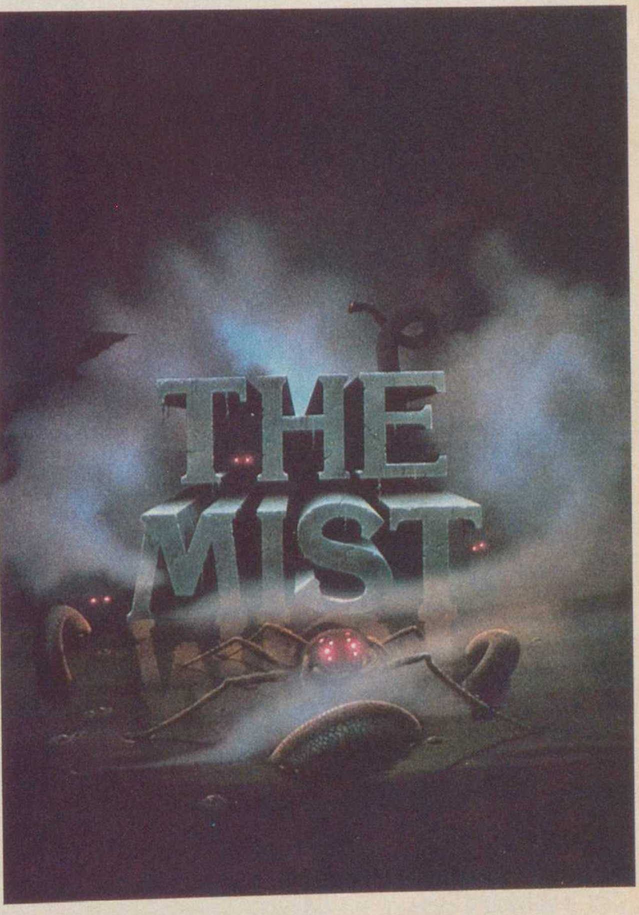
Got a terrible case of Joystick Thumb, Trackball Wrist, or Gamer's Elbow? Not to worry—now you can nod out with Nod, a new kind of cursor controller from Stride Micro. It's a little box equipped with a lot of light-emitting diodes and light sensors, which you attach to the top of your monitor. You then stick any kind of light-reflecting material—tinfoil, a shaving mirror, whatever—on your forehead, and the box tracks every movement your head makes thereafter, moving the cursor appropriately: up and down if you start nodding your assent, and from side to side if you shake your head "no". There's no word yet on whether it works with *River Raid* on your Atari, but it ought to be just the thing for those determined never to lift a finger again, or the kind of bodybuilder who's very interested in neck development. The only problem is: What happens if you sneeze?

SOFT TALK

Stephen King is a very nice gentleman who writes some of the creepiest fiction ever committed to paper, books, radio drama, films—and now, thanks to Mindscape, floppy disk. *Stephen King's The Mist* is a new text adventure based on King's novella of the same name. One of King's specialties is making the most ghastly things happen in the most normal settings—and if you've always thought finding your way out of that haunted mountain resort in *The Shining* would make a chilling adventure-game scenario, try this out: "A dense fog mysteriously descends upon a quiet New England town...and hidden within this cloud is the stuff of which nightmares are made. Those fearless or foolish enough to venture outdoors shriek strangled cries of terror, and are never seen again. Is the government research installation down the road responsible for such horror? Who or what is behind all this? Escape is essential—but there may be nowhere left to go...." *Stephen King's The Mist* will be ready to descend in a highly threatening manner on your Apple this month, the IBM PC in September, and Macintosh in October...

And if horror isn't your meat, you might want to follow in the always-elegant footsteps of James Bond, as he tries to save Silicon Valley from destruction at the hands of the power-hungry, revenge-happy madman in *James Bond: A View to a Kill*, another Mindscape adventure, based on the film released this past May. Both adventures feature a highly interactive parser, vehicles that let you travel through the game environment, and special wandering characters with "moods" that let them react differently at different times and in varying situations. Both adventures have the same release schedule, and run $39.95 suggested retail...

Speaking of movies, does anybody out there remember *Rollerball*? If so, you might find a certain *deja vu* feeling creeping over you during your next trip to your local arcade. Certain to be on play there will be one of the big hits of this year's arcade operator trade shows, *Mayhem 2002*, from the recently revamped Cinematronics (who brought you the first popular laserdisc game, *Dragon's Lair*). The rather bluntly named *Mayhem* is described as "a high-tech, rock 'em-sock 'em sporting event that takes place in a futuristic roller arena. A large, glistening steel ball is shot into the arena by a cannon, and the objective is to scoop up the ball, skate to the flashing goal, and slam it home, all the while fighting off your opponent, who wants to do the same. Body-checking and high-speed collisions that can jar the ball loose are only part of the action, as the cheering crowds urge the players to beat the clock for the highest score...." Be sure to wear your armored gauntlets, Mr. Hulk...



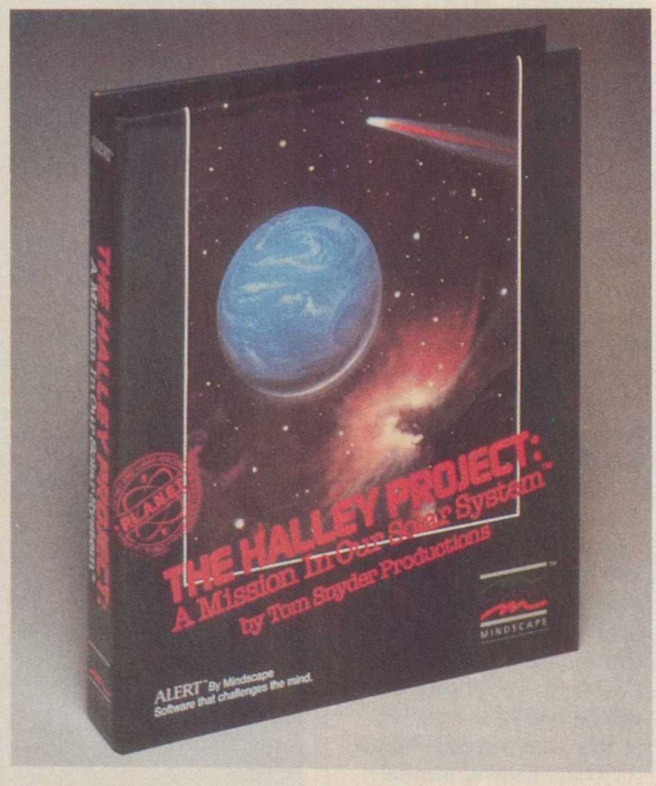
Broderbund and its "new" subsidiary, Synapse, scattergunned a whole lot of new releases at the June Consumer Electronics Show, emphasizing that the once game-only companies are very big on diversification these days. The Synapse games on view included two new entries in its "Electronic Novel" series, *Essex* and *Brimstone*, plus yet another sequel to the best-selling *Lode Runner*, *Lode Runner's Rescue*, and *Wizard of Wall Street*. Broderbund stuck with only one brand-new game, *Captain Goodnight* (shown with the excellent *Ancient Art of War* and *Karateka*), and chose to give first place to new extensions of its line of creativity programs, starting with three additions to its hit *The Print Shop*—two new disks of graphics resources called *The Print Shop Graphics Library*, and *The Print Shop Companion*— a music composition and synthesizer program called *The Music Shop*, and a highly unusual special-effects generator for the Apple II, *Fantavision*, which incorporates animation technology similar to that used by major film studios...

The up-and-coming

Bulletin Board

Notes from the Neighborhood

Mindscape is also all over the place, with a number of new pure-fun and/or educational entertainment releases, plus some that are tough to classify. Along with the computerized party guest, *Racter*, and the real-time solar-system simulation *The Halley Project* (see elsewhere in this issue for more on both), Mindscape has debuted *The Luscher Profile*, a program that develops a psychological profile of users according to their color preferences. The program, based on Dr. Max Luscher's 1969 book, *The Luscher Color Test,* claims to let users "reveal their basic nature and gain clues to self-understanding." On the strictly gaming side are two new text adventures, *Voodoo Island* and *Forbidden Castle,* both designed by award-winning author and illustrator Mercer Mayer, and available for the Apple, IBM PC and Macintosh. One game designed specifically for the Macintosh, and making extensive use of that computer's windowing and graphics capabilities, is the graphics/text adventure *Deja Vu,* which transports the player into "a classic 1940s Hollywood mystery," complete with tough-talking gangsters and their blonde molls, and a plot involving a case of amnesia, mistaken identities, and needle marks on your arm. All the characters, props, action and action options are presented in high-resolution graphic windows that let the player see several different aspects of the adventure at once, and even move props from one window to the next via the mouse. It's due out this month, and sells for $49.95. And the list goes on. Mindscape apparently has a good eye for a thinking person's game. They've picked up *Dolphin's Pearl* from the now defunct Reston Computer Group and are remarketing it as *Dolphin's Rune: A Poetic Odyssey*. Mixing arcade action with a word puzzle, *Rune* puts the player in the role of a bottlenose dolphin searching for dolphin lore. To help promote the product, Mindscape is offering an expense-paid trip to an exotic island to the first person who correctly translates and understands the poem...


THE HALLEY PROJECT:
A Mission In Our Solar System
by Tom Snyder Productions
PLANET
MINDSCAPE
ALERT By Mindscape
Software that challenges the mind.

Good news for overseas gamers who've been wondering why it takes so long for games from big U.S. companies to make it over there (good games from little companies often never make it at all). Commerce Department rules prohibiting export of militarily-sensitive software to countries that might use it against the U.S.—laws that also made it pretty tough to market *any* kind of software overseas—have recently been modified to allow U.S. companies to ship most software to free world countries under an easy-to-obtain license. Much of the credit for this goes to ADAPSO...

WORKSTICK

Now what would you call "a sophisticated cursor control device that...can move rapidly and accurately in straight lines...doesn't have to be 'stroked' across a desk...takes up about the same desk space as a cup of coffee, and requires no maintenance?" If you answered "a joystick, dummy,"go to the head of the corporate boardroom—which is exactly where joysticks themselves seem to be headed these days.

Leading the pack in this new wave of upwardly-mobile gaming devices is Kraft Systems' "Executive Cursor Control" a software utility that turns the company's Premium Joystick into "a convenient, precision, and low-cost workstation input device for controlling cursor movement" with a wide range of business-oriented computing hardware, including the IBM PC family and IBM's collection of windowing TopView productivity programs.

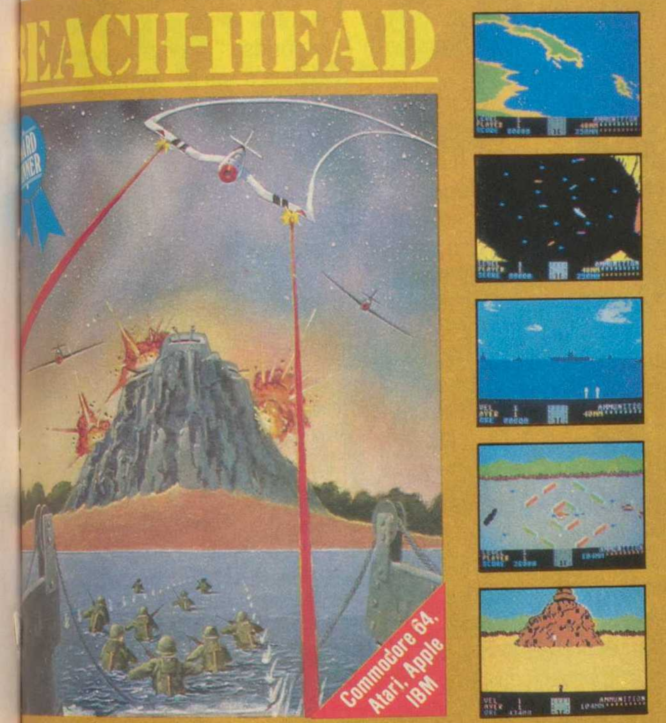
The joystick itself is a deluxe model of the same kind of device instantly recognizable to anyone who's ever played a fast game of *Pac-Man* on, say, an Apple: two function buttons, dual-axis trim controls, and the all-important stick itself. The Premium also sports a "precision gimbal mechanism" (the same kind manufactured by Kraft for more than 25 years) which the company says can be "operated with fingertip control, as opposed to the 'gearshift' hold used on arcade-type joysticks." Sounds pretty nice.

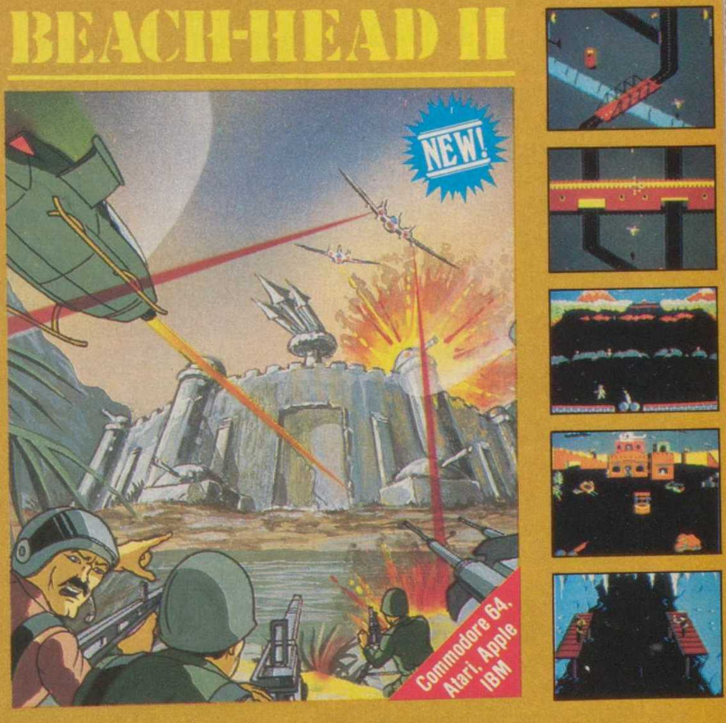
The real heart of the product, though, is the Executive Cursor Control software, a collection of Macro files and other adaptive programs that can turn your staid old spreadsheet program into something very like...well, a game. With *Lotus 1-2-3,* for instance, the software creates a series of pop-up menus that hold an array of the most commonly used *1-2-3* keyboard functions and commands. "With these preprogrammed menus," the company says, "the user is no longer required to memorize a myriad of commands and can literally set aside the *1-2-3* user's manual." In other words (as any fanatic gamer will tell you): Don't bother to read the directions; just boot and play.

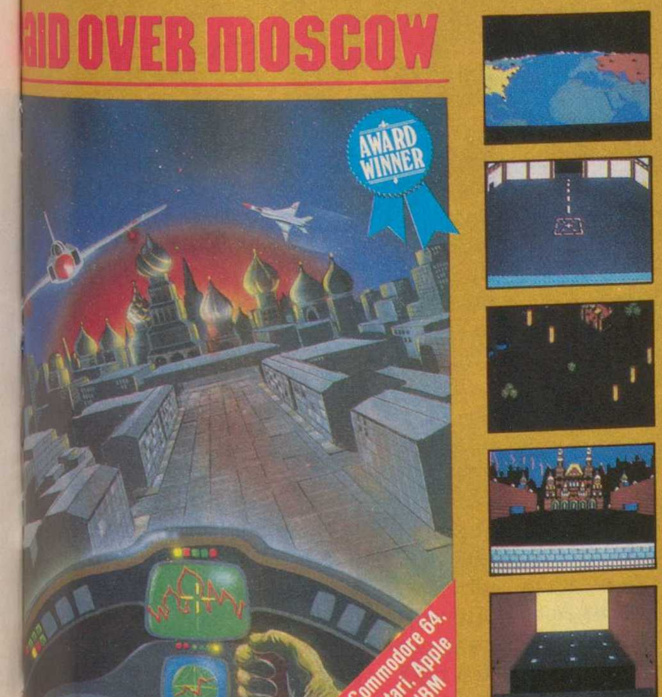
Why it's taken so long for businessmen to get comfortable with the inher-

irect HITS!

ACCESS **BEACH-HEAD** — As chief commander of armed forces in the Pacific, your first assignment is a tough one. Your mission is to obtain a quick naval victory and invade enemy territory with land forces. **BEACH-HEAD II** — The wartime drama continues with "The Dictator Strikes Back." **BEACH-HEAD II** is a true "head to head" two player game with voice simulation and superb multiscreen graphics. **RAID OVER MOSCOW** — The Soviets launch a first strike against the United States. Can your commandos react in time to stop the attack?







NEW!
MACH 5
CARTRIDGE FAST LOADER
MACH 5
Commodore 64

Mach 5 is a collection of powerful programs that enhance the capabilities of the C-64 with a 1541 disk drive. The package provides up to 500% faster program loading. 4K of additional basic workspace and disk cataloging.

Mach 5 Loader will load 95% of all programs up to 500% faster than a normal 1541 disk drive. Adds addition "single keystroke" commands to make life with your 1541 more pleasant. Mach 5 Basic modifies the C-64 kernal and basic ROMs to free up an additional 4K bytes of memory for use by basic language programmers. The workspace is increased from 39K to 43K while remaining fully compatible with normal CBM version 2 basic and Mach 5 Loader.

Mach 5 Disk Organizer is a comprehensive disk management program which will create a data disk containing directory information from the user's entire disk library. Disk names, file names and other important information is automatically extracted from a disk and cataloged for future reference. The user can then obtain a sorted list of all disks and all files within their library, or search for specific file names or parts of names. Output can be directed to either screen or printer.

ACCESS
Software Incorporated

These Access Software products are compatible with the **Commodore 64, Atari, Apple II+/IIC/IIE** and **IBM PC/PC Jr.** Be sure to look for other Access Software products at a store near you.

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For additional information, circle No. 4 on Reader Service Card.

ent advantages of the joystick over the keyboard is anybody's guess, but lack of blue-pinstriped dignity seems to be one of the reasons. Kraft is careful to point out that the Premium "is a professional appearing device, with a design and color scheme that complements business computing hardware." A certain lack of manual dexterity among older executives may be another; as Kraft executive Luther Andross says, "We have carefully selected design parameters for the program that accomodate a variety of user preferences and eye-hand coordination levels."

MSX EXPRESS

Spectravideo plans to have its MSX computer, the Express, in the stores by September. With Atari alumni now in their management and a $2.6 million tab picked up by Bondwell, its former Hong Kong supplier and now partner, Spectravideo is devoting itself exclusively to the home market. The Express, currently the only MSX with a built-in disk drive, has 80K RAM, built-in 80-columns, and RS232C and Centronics interfaces. The Express, unfortunately, has a poor user-interface for word processing, with the return key two rows of keys above its normal place.

Spectravideo's other new entry in the U.S. market is the joycard, a controller with a large, flexible button in the center for movement and two keys on the side for firing. A trackball-type product is also on the way. Called a joyball, it's limited to four points and does not roll the full circumference.

Bondwell has taken over Spectravideo's line of business computers. The Bondwell 22 word processing system has a built-in trackball that acts as a mouse when scrolling through text—a feature that would be a bonus on the company's home machines as well.

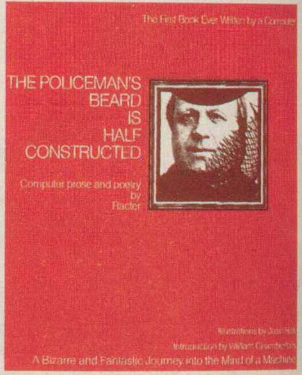
RAPPIN' RACTER

Not even 18 years old yet, and the kid's a *bon vivant*, widely quoted wit, sought-after party guest, published author, and general program-about-town—not to mention a probably-certifiable looney. The name is Racter, short for "Raconteur," and he (we're still a litte hazy on the gender question here) is a brand-new piece of software from Mindscape that allows IBM PC, Apple and Macintosh owners to have spontaneous, interactive, sophisticated—and *very* woozy—conversations with their computers.

The first copies of him were released back in June, and already he's become an "in" kinda guy among the folks who count. "Racter was born in the back room of a nameless tavern," according to his official biography. "At an early age, the intense young program came to appreciate the art of storytelling, and realized that what the world really needed was a computer who could entertain at parties. Since the publication of his book [see this month's "Hard Copy "], Racter has enjoyed the rewards of success, including wild parties, polo, and deep philosophical discussions throughout the cocktail circuit."

The real background dirt on Racter reads a little differently, though. The brainchild of programmers Bill Chamberlain and Tom Etter, he's an implementation of Inrac, a programming language they developed, and the source of Racter's amazing ability to converse in coherent—if bizarre—English sentences. He's able to ask questions, respond to the user's questions more or less directly, take off on completely new tangents of his own, quote famous authors, make up stories about his Aunt Hortense, wax philosophical, and generally come off like a fascinating cocktail companion.

Also a slightly inebriated one. "The stereo whispers of love while Benton and Diane watch each other in an appalling reflector," Racter relates, in a surreal love scene from *The Policeman's Beard is Half Constructed*. "Their souls are exhausted." Asked about the influences on his writing, Racter responds: "Maybe Genghis Khan's uncle, or maybe George Washington. He's from the Hotel Pierre." Ah well...success at a very early age can often unbalance a talented and high-strung intelligence, they say.

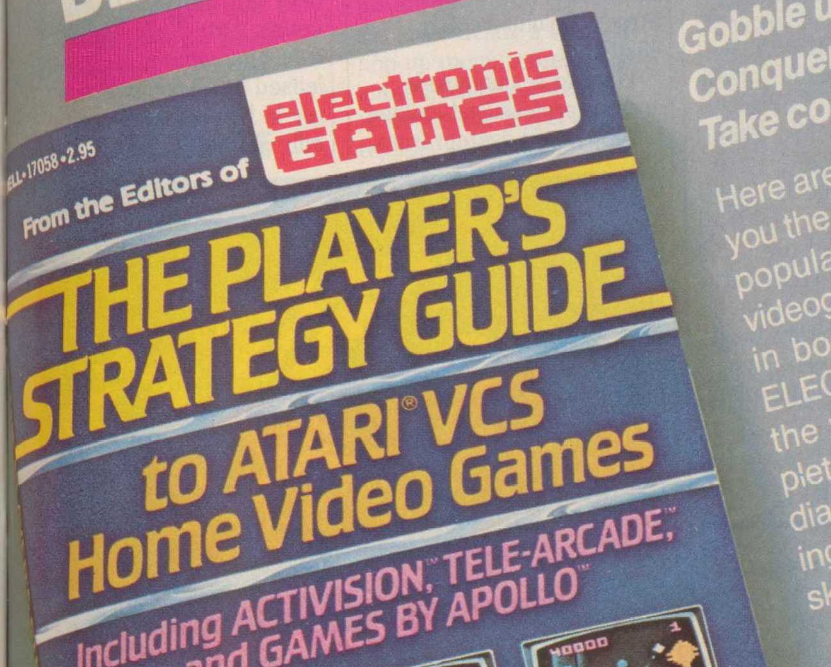

The First Book Ever Written by a
THE POLICEMAN'S BEARD IS HALF CONSTRUCTED
Computer prose and poetry by Racter
A Bizarre and Fantastic Journey into the Mind of a

Still, Racter never mumbles (although he sometimes sneezes), fondles the other guests' wives, or repeats himself, and some of his chat can be downright profound. Mindscape begs off on the question of whether he's really an early appearance of a true artificial intelligence, saying only that he has been "half-heartedly endorsed by the Institute of Artificial Insanity." If you'd like some hard answers on this program and where he's coming from—and aren't yet ready to spend the $49.95 it costs to invite him over—stick with us a little longer; *CE* will be doing a real *60 Minutes*-style interview job on Racter next month.

BLAZING SCHOLARS

All Yuppies craving a chance to really make use of that old Sociology or English degree they

BECOME A VIDEO GAME WIZARD!



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Bulletin Board

Notes from the Neighborhood

earned—before giving up dreams of academic glory for accounting, part-time real estate speculation, and computer gaming—should take note: The distinguished Popular Culture Association is now accepting proposals for papers and panel discussions to be presented at its next big meeting. The topic: "All aspects of computer entertainment"—including adventure games, arcade games, computer art, computer music, and "any other ways that computers have affected American popular culture," according to Dr. Peter Jordan, associate professor of English at Tennessee State University.

Jordan will be Area Chair for the Computer Entertainment section of the next PCA meeting, to be held in 1986 in Atlanta, Georgia, April 2 to 6. The association, headquartered at Bowling Green State University in Bowling Green, Ohio, was formed 16 years ago to, as the organization's official history states, "study thoroughly and seriously those productions, both artistic and commercial, designed for mass consumption" in a variety of media.

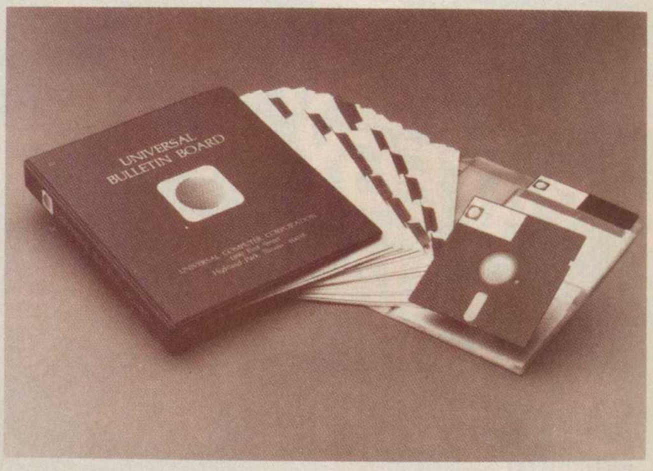
If you've got a good idea —and it doesn't have to be strictly about games— don't be shy. "From arcade games to computer art and music, from bulletin boards to the hacker phenomenon, I'd like to see proposals for discussions of all phases of the impact computers have had on our culture," says Jordan. "We had some good discussions of interactive text adventures this year, and next year we'd like to see those discussions continued. But we'd also like to see discussions of other ways that computers have affected popular culture. I hope we'll even get proposals on the way business uses of computers, such as word processing, data bases and spreadsheets, have changed our lives."

To submit ideas for papers, write to Dr. Jordan at Tennessee State University, Downtown Campus, 10th and Charlotte, Nashville, TN 37203. For more information about the Popular Culture Association, contact Dr. Ray Brown, PCA Secretary-Treasurer, Popular Culture Association, Popular Culture Building, Bowling Green State University, Bowling Green, OH 43403.

SOFT TALK II

A completely interactive, all-software program that will let your IBM PC talk to you—with no hardware modifications necessary. That's what programmer Ron Hutchinson, developer of the *PC Talking Program,* is claiming for his recently-completed "Enhanced" version. Hutchinson, who lost his sight eight years ago, originally developed the *Talking Program* as a way for "the visually impaired person performing programming, word processing, data entry, educational applications, and other functions, to use computers just as a sighted person does." He says the *Enhanced PC Talking Program* contains over 24 new enhancements, many suggested by users, and is completely transparent to the user. It integrates itself into the computer operating system, takes up less than 5K of memory, is virtually crashproof, and is compatible with approximately 95 percent of off-the-shelf software, including telecommunications programs like *PC Talk.* Anybody want a talking *Deadline*? You can contact Hutchinson at Computer Conversations, 2350 North 4th Street, Columbus, OH, 43202…

Want to set up a safe, secure, professional-looking bulletin board system from your Apple II—without a lot of hardware hassles, work, and cost? AIM (The Association of Independent Microdealers) claims to have the answer: *Universal Bulletin Board,* a software package designed to run with most hardware (including all kinds of clock cards, floppy and hard drives, modems, etc.), that will let your board offer up to 10 message bases, up/download capabilities, online games, electronic mail, library and report capabilities, complete password protection, and lots of other features, all within a system that "works in a similar fashion to the large telecommunications centers such as The Source, EasyLink, and others…." Marketed only through AIM dealers, the UBB goes for $149.95. For a list of dealers, you can contact AIM at 3010 North Sterling Ave., Peoria, IL 61604.



THE NEW FRONTIER

"Beam me up Scotty. I think the disk drive is overheating." Yes, someone finally got the *Star Trek* license. *Star Trek: The Kobiashi Alternative* is being released by Simon & Schuster in November. Reportedly an interactive text adventure where players must solve the mystery of "the Bermuda Triangle of space," the game universe includes over 100 planets and star systems. Simon & Schuster is claiming that their parser will be more responsive than Infocom's—allowing the player to use any word contained in the descriptions or conversations with other characters.

As Captain Kirk, the player must stay in character or other characters relieve him of his command. Spock, McCoy, Uhura and other familiar personalities will interact through split-screen windows.

QUOTE OF THE MONTH

This one's from Spinnaker Software chairman William Bowman, who did a little IBM baiting in the

Wall Street Journal the day after Big Blue announced it was dumping the jr: "We're just sitting here trying to put our PCjrs in a pile and burn them. And the damn things won't burn. That's the only thing IBM did right with it—they made it flameproof."

THE ULTIMATE ULTIMA?

"I think I'm more pleased with this game than with anything else in the series. I'm usually too tired of them to play them much by the time they're finished, and I'm already thinking about the next one by then. But I'm really pleased by this one; I'm still playing it right now."

That's "Lord British"—also known to readers of *CE* as "Richard Garriot"—talking abut *Ultima IV: Quest of the Avatar*, the latest and what looks to be the most complex and innovative installment in the long-running hit series of fantasy role-playing games.

When we spoke to him, Garriot was putting the final touches on the game. "It's really down to the wire now," he said, adding that the game should begin appearing in stores this month. We noted that many people had been expecting the game last year. What happened?

"Well, when I missed Christmas (1984) deadline we'd set, I was actually kind of relieved. It meant that I had an extra six months to work on it; six months that I could use to add much better features than I could have done otherwise."

"The game is also much more user-friendly than earlier editions," he added. While features to enhance player skill without demanding constant reference to manuals have been added throughout the game, he noted, examples include instant inventory commands, "Ready a weapon" pop-up menu screens that automatically list what weapons the player character has available to him, similar lists for armor and magical spells, etc.

There's also been a radical shift in goal compared with earlier games, he explained. Inspired by a TV program about the Dead Sea Scrolls, readings in Eastern and other philosophies about the concept of Avatars, and a lot of thinking about the impact of role-playing games on their audience, Garriot has come up with "a very strong scenario" that may be unlike anything else in role-playing games today.

"In all the other games I've done, there's always been one central evil—a bad guy that you had to find and clobber. Here, the goal will be personal conquest—you have to prove yourself, to yourself and to the other characters in the game. Everyone who plays this game will have to discover the eight types of philosophies in it and learn them all."

Those tests will begin at the very beginning of the game, he added. "You won't be given a character as you have in other games; that is, it won't be arbitrary. You'll sit down to create a character, and the computer will ask you questions on your personal beliefs about a lot of things, and then give you a character, assigning attributes and other things according to your answers.

Exodus ~ Ultima III

Map from *Ultima III. Quest of the Avatar* will be 16 times the size.

"I don't want to give away too much, but the point is, you have to prove you're a good guy—a bad guy *cannot* win in *Ultima IV*. Stealing money and other things from the shop in the towns, for instance; in the other games, that's been a very important thing. Being able to steal effectively has been one of the only ways that some people have been able to survive in the early stages. Well, here, if you steal a lot, money or anything else—especially if you make a habit of it—you will never be able to win."

Partly because of the more complex goal of the game, the structure of clues that leads the player on to the goal has become more complex, leading to a big expansion of the results of "transacting" with non-player characters your character meets in the world of *Ultima*. "There's much more text in this game. Before, when you used the 'transact' command, a lot of the characters had no names, and couldn't say much more than 'Ho, hum' or something like that. Now, every non-player character has full conversational ability: he has his own name, and he can question you."

It appears to have been quite a task finishing the game for Garriot, who fairly recently moved his entire company, Origin Systems, from his native Texas to the East Coast. He notes that he had a lot of help—notably from *CE*'s own national editor, Roe Adams, who co-authored the scenario.

"Roe is a great idea man. For one thing, he's much better-read than I am—I'm *terribly* read—so whenever I was trying to do something with some abstract concept like 'truth,' he had all this background at his fingertips that I could draw on. Plus, he's played just about every game ever made, so whenever I got stuck with something about the quest and how to finish it, he'd just start reeling out dozens of suggestions."

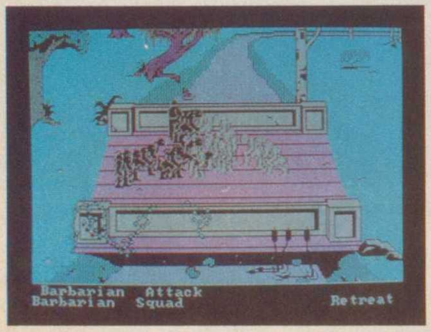
Rumors that this may be the last *Ultima* are completely unfounded, he added. "I've already got *Ultima V* conceptualized." And while he has considered the idea of an electronic *Ultima* "Construction Set"—and rejected it, because of the complexity of the coding job it would represent—his next project may be something much like that—only played on paper, like *Dungeons & Dragons*.

Line Feed

Domestic and Foreign Correspondence

NO WAR FOR COMMODORE

I have to compliment you on your May issue, especially your article "World War III and Counting." I would like to know if the program *The Ancient Art of War* will come out for the Commodore because after reading your article I knew I had to have this game.



Anthony Miceli
Staten Island, NY

Ed: Sorry, Anthony, but The Ancient Art of War *is only available in the IBM PC and PCjr. Versions for the Apple II and the Macintosh are in development, but Broderbund currently has no plans to create a Commodore translation.*

PHILOSOPHICAL AGREEMENT

I read the "On-Line" article about *Computer Entertainment*'s philosophy toward the market which they serve. I am very excited and pleased about that philosophy because that's the same philosophy that MicroProse has been working under since our inception almost three years ago. We believe that the computer is a fantastic tool, with great potential for leisure time activities. We serve those who want to get more out of their computer than the cheap thrill of an arcade entertainment product. We provide adventure, excitement and experiences that the average computer user could not have in his day-to-day life, but *can* have through the magic of computer simulation.

We have been providing such entertainment since our very first product, *Hellcat Ace*, which gave the computer user the opportunity to feel the excitement of World War II combat in an F6F Hellcat Navy Fighter. We have gone a long way since those early simulations in sophistication and complexity of the programs we provide to the public. As a real fighter pilot myself, I know the excitement of rolling inverted into a split "S" or pulling 6 G's on the tail of another aircraft. With *F-15 Strike Eagle*, we can bring that home to our customers.

As we say at MicroProse, "The action is simulated—the excitement is real!"

Bill Stealey
President, MicroProse Software

KUDOS

Your May issue of *Computer Entertainment* was great. I read and enjoyed every article, especially the section on Tom Snyder. It showed me what it really takes to be a software creator. Keep up the great work!

John M. Ehret
Huntington Beach, CA

COCO PUFFS

I have been a subscriber to your magazine starting with your first issue, sometime after I received my computer, a Tandy Color Computer (previously known as TRS-80). Your coverage of the CoCo (its affectionate nickname) was small at first but better than any other magazine at that time. Then I discovered a magazine devoted entirely to the CoCo, *The Rainbow*. As the months went by, your CoCo coverage declined.

A long time later I found out your magazine was still in existence (all the other game magazines were dying out and I thought yours was one of them). The April 1985 issue was packed with articles that interested me: Doug Adams, the *Adventure Construction Set*, "How to Vaporize Friends and Influence People," and most of the other regular columns. I was surprised at how much it had changed. But one thing hadn't changed: your CoCo coverage.

I'd like to subscribe, but it would still be virtually useless in terms of CoCo products. There are many games, simulations, and adventures available to the Color Computer; for instance, it has good arcade versions of *Donkey Kong, Centipede, Pac-Man, Ms. Pac-Man, Joust, Crystal Castles, Jungle Hunt, Popeye, Frogger, Tron, Donkey Kong, Jr., Galaga, Tapper, Q*Bert, Zaxxon, Bump & Jump, Pole Position* and many, many others as well as CoCo originals.

Even if you keep the CoCo shut out, your magazine is tops with me. Thanks.

Eric Lund
Millington, NJ

Ed: Again, we like to review games as

early as possible, which means reviewing them for whatever system they first come out on. Whenever we receive any original programs for the TRS-80, we will be sure to review them.

ATARI LIVES

I have been a subscriber to your fine magazine since its beginning and I enjoy it very much, but I have noticed a diminishing number of articles and reviews on Atari products. (There were only two reviews of Atari software in the June 1985 issue.) Why? I know Atari is going through rough times, but they have introduced *three* new computers, which are comparable with the Mac, IBM PC and Commodore 128 at a projected lower price! It seems only logical there would be *more* reviews of the new Atari products. (Perhaps a whole article on the new machines?) Since I am thinking about trading in my 800 XL and 1050 for a 130ST I want to know more about them.

Are third-party software companies going to support the 130ST with 128K games and other programs? (Possibly *King's Quest.*) I certainly hope the new Ataris don't suffer the same fate as the PCjr. Long live Atari!

John Evans
Wadsworth, OH

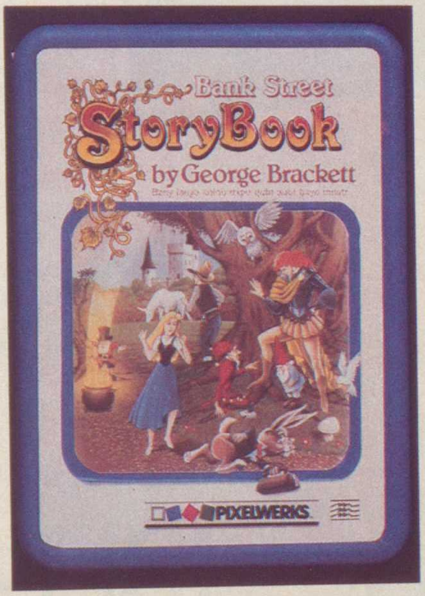
Ed: When the new Atari machines actually come out on the market, CE *will be covering them, and whatever new software is produced for Atari will be reviewed. However, currently few new programs are coming out for Atari systems, and we usually do not review different translations.*

IN SEARCH OF...

I saw your write-up in the June issue of *Bank Street Story Book.* Sounds like just the thing I'd like to use in school with sixth grade youngsters. Any idea where I can send to get one? I've tried every software place in town and not only do they not have it but most haven't heard of it either. Any ideas?

Joe Harness
Starr School
Fresno, CA

Ed: Bank Street Story Book *can be ordered from Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062.*



I am trying to locate information to purchase *Plantin' Pal,* as reviewed in your March issue. None of my dealers, or their sources, seemed to be able to locate K-Tel Software. (Should it be under Home & Hobby?) I would appreciate it if you could give me the address and/or phone number of the company as soon as possible.

Page Ritchey
Northland Public Library
Pittsburgh, PA

Ed: Plantin' Pal *can be ordered from K-Tel Software, 11311 K-Tel Drive, Minnetonka, MN 55343. K-Tel's phone number is (612) 932-4004.*

HANDS ACROSS THE SEA

I want to know if you guys have an address or the name of someone I can contact in England to trade programs and software with. I would love to see some of their software and I'm sure they'd like to see some of our great stuff, too, like *Raid on Bungeling Bay.* If you could help me out with this, I'd be eternally grateful.

David Commors
Ashland, OR

Ed: Your best bet is to write to one of the British computer software magazines and let their readers get in touch with you. Try Computer & Video Games, *Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.*

SETTING THE RECORD STRAIGHTER

In response to the "Apple Advocate" (*Electronic Games,* April), I have this to say. The Atari and Commodore both offer sprite graphics, higher resolution than Apple, and the same memory as the Apple. Any program that has better graphics on the Apple is not utilizing the full resources of the Atari or Commodore. This is strictly the fault of the programmer, not the hardware. The record was correct as you originally reported it, and did not need any "straightening."

Richard Drewes
Richardson, TX

APPLE CONSTRUCTION

I have an Apple IIe system and take advantage of software reviews for it. One in particular caught my eye in the April issue of your magazine: Electronic Arts' *Adventure Construction Set.* I have nearly all the construction sets on the market, but this one sounds like the ultimate. The only problem is none of the local dealers can give me any information on this program except that it is out for the C-64. Is Electronic Arts planning a version for the Apple II world?

Keep up the great work with *Computer Entertainment,* and thanks for any help you can give me.

Hamlin Boswell
Mesa, AZ

Ed: Electronic Arts is already working on the Apple version of ACS. It should be in stores by the time you read this, and will retail for around $49.95.

Please send your letters to:
Line Feed Editor
Computer Entertainment
460 West 34th Street
New York, NY 10001
We appreciate hearing your questions and opinions on topical subjects, but all letters must be signed.

Designers Take A Busman's Holiday

By ROE R. ADAMS III

When you reach the edge of sheer frustration playing an arcade game or batting your head against a wall in an adventure game, do you ever wonder what games the designer themselves play? Well, we did. We polled thirty-five of the top game makers in the country to find out what they played and why. There were only two criteria for choosing their favorite game of all time: the game had to be one that a) they did not write themselves (you should have heard all the groans), and b) their company did not publish (much gnashing of teeth with Broderbund and Electronic Arts designers).

Here are their favorites:

Alexis Adams *(Pirate Adventure; Mystery Fun House; Voodoo Castle)*
Pac-Man, *Atari*

"Only arcade game I really got good at playing. I love gobbling up all the little dots!"

Scott Adams *(Adventureland; Pirate Adventure; Adventure #3; Voodoo Castle; The Count; Strange Odyssey; Mystery Fun House; Pyramid of Doom; Ghost Town; Savage Island I, II; Golden Voyage; Sorcerer of Claymorgue Castle; S.A.G.E.; Hulk; Spider-man; C.R.I.S.)*
Star Raiders, *Atari*

"You don't have to think a lot with this game. It has plenty of action and seems to go on forever. Great relaxation after a hard day programming."

Dave Albert *(Xevious)*
Beneath Apple Manor-*Special Edition, Quality*

"This is an incredibly simple fantasy role-playing game, yet I find it very compelling. Many of the parameters of the game can be changed, so I can have as challenging a game as I feel like at the moment."

Michael Berlyn *(Suspended; Infidel; Gold Rush; Cyborg; Oo-topos; Congo)*
Wilderness Campaign, *Synergistic*

"I really loved that game. It showed me what games could be. When I walked into one of those shops to buy or sell something, and I started to negotiate with the merchant, that blew me away. This was the first game that had that kind of presence in it."

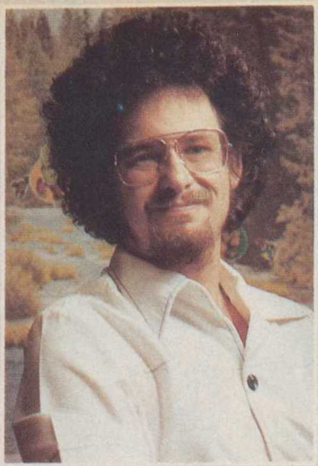
Marc Blank *(Zork I, II, III; Deadline; Enchanter)*
Star League Baseball, *Gamestar*

"I only play this in the two-player mode. It's great for a rainy Saturday afternoon. The game really tries to be realistic, even has great sound effects. It is a marvelous duel of wits between the pitcher and the batter."

Arturo Britto *(Rescue Raiders; Crypt of Medea)*
Alien Typhoon

"A real no-mind game. All reflexes. Great for relaxing."

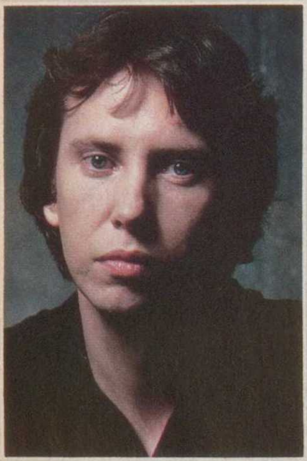
Ever wonder what game designers play for fun—besides their own programs? Well, we did. and the results are in.



SCOTT ADAMS

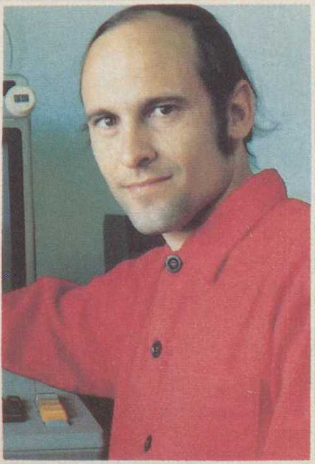
DAVE ALBERT

MICHAEL BERLYN

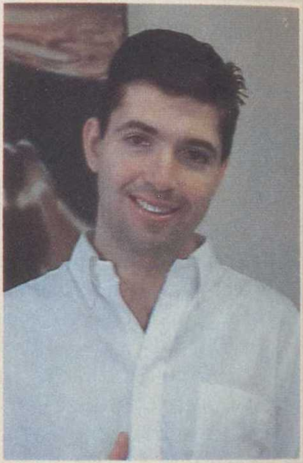


DAN BUNTEN

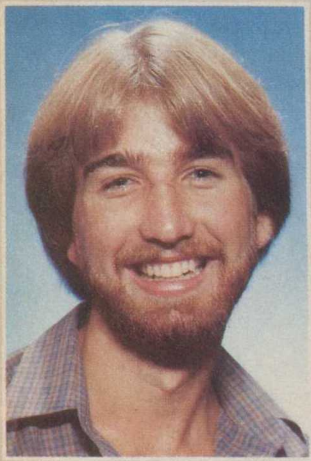
MARC BLANK



CHRIS CRAWFORD



BRIAN FARGO



DOUG SMITH

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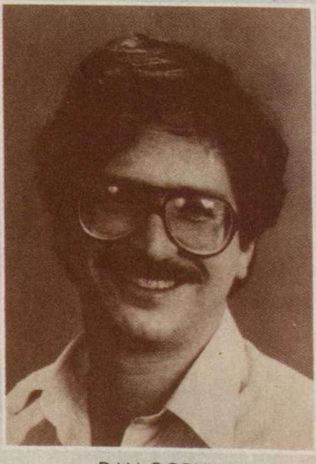
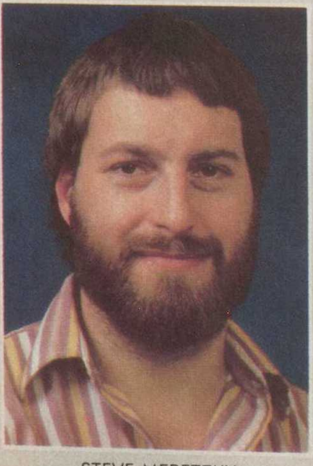
CHRIS JOCHUMSON

GABRIELLE SAVAGE

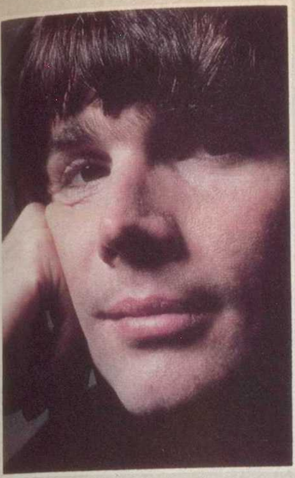


DAN GORLIN



STEVE MERETZKY

DAVE SNIDER



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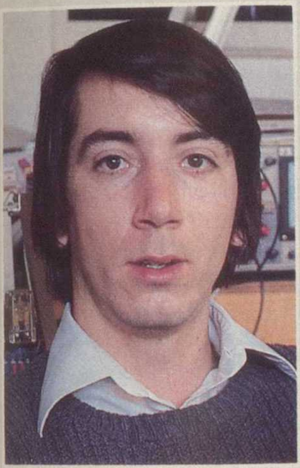
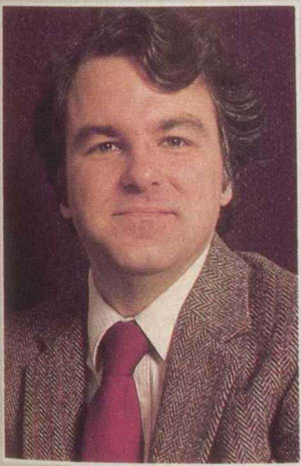


WILL WRIGHT



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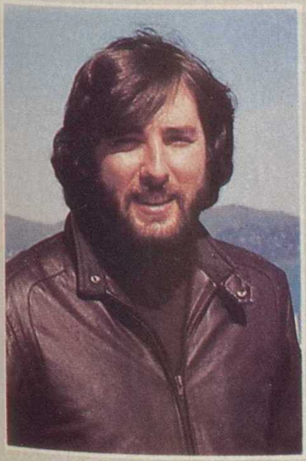


DAVID MULLICH

Busman's Holiday

Bill Budge *(Pinball Construction Set; 3-D World; Raster Blaster)*
Breakout, *Atari*

"Despite its great age, that's the game I really have enjoyed the most over the years. The part I really like is to drill a little tunnel into the back row. Then on the next turn, I'd place a ball up through the tunnel. Usually, that shot would clear the entire field."

Chuck Bueche *(Autoduel; Caverns of Callisto; Lafpak)*
Loderunner, *Broderbund*

"It entertains me, because it's very simple escapism. I like the wide variety of puzzles. They're quite challenging."

Dan Bunten *(M.U.L.E., Seven Cities of Gold)*
Combat Leader, *Strategic Simulations Inc.*

"I actually go back to this game a couple of times a month. I played a lot of war games in my precomputer days, so I love the company-level, combat maneuvering of this game."

Tom Carbone *(Universe)*
Deadline, *Infocom*

"It was a lot of fun to play. I was amazed by the amount of characterization. You could actually talk to people and the people would move around the house on their own. *Deadline* had more of a 'You Are There' feeling than anything I have ever played."

Chris Cerf *(Dark Crystal; Muppet Learning Keyboard; Welcome Aboard; Kermit's Electronic Storymaker)*
Hitchhiker's Guide to the Galaxy, *Infocom*

"It is brilliantly clever and funny in a way that no one else has come close to yet. Best adaptation of a popular novel. Real interactive fiction."

Chris Crawford *(Eastern Front; Excalibur; Arms Race)*
M.U.L.E., *Electronic Arts*

"I can play this game with my wife. She doesn't like computer games, but *M.U.L.E.* is one game she enjoys playing. It's so seldom that I can get my wife involved with my work, that this game holds a special place in my heart."

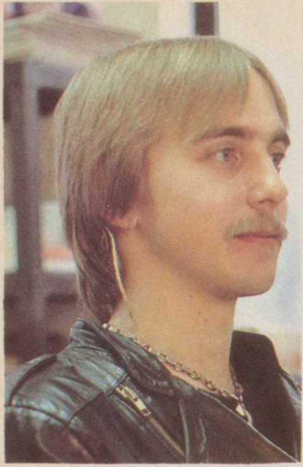
Brian Fargo *(Demon's Forge; Tracer Sanction; Mindshadow)*
Wizardry, *Sir-Tech*

"I have put several hundred hours in playing this game. I would say I am a hardcore *Wizardry* fanatic. It gives me a fantastic feeling of being right there in the dungeon, and actually wielding the sword."

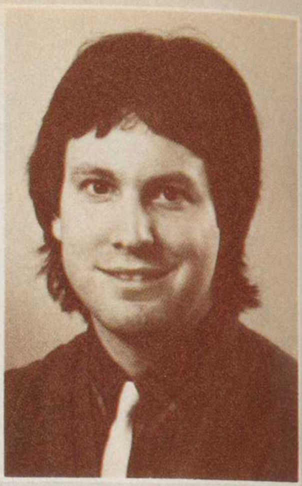
Jon Freeman *(Archon; Adept)*
Wizardry, *Sir-Tech*

"I enjoyed all the fantasy role-playing aspects of the game, especially working hard to elevate characters to any of the higher classes, like Samurai or Ninja. I put many a long hour into this game."

Who would guessed that one of the designers of Zork loves to play Star League Baseball? Or that Lord British is a Choplifter fan? Pac-Man and Hitchhiker's Guide are heavy favorites among designers, too.


RICHARD GARRIOTT

JON FREEMAN & ANN WESTFALL


TOM SNYDER

Busman's Holiday

Stu Galley *(Cutthroats; Seastalker; Witness)*
Loderunner, *Broderbund*

"The constructive aspects of the game appeal to me. It's designed like math theory: it has a small set of rules that, when combined, result in all kinds of possibilites and constructions. The results are often not what you might have predicted."

Richard Garriott aka Lord British *(Ultima I, II, III, IV; Akalabeth)*
Choplifter, *Broderbund*

"I really enjoy the responsive handling of the helicopter, coupled with the ultra-active sophisticated graphics."

Dan Gorlin *(Choplifter)*
Rendezvous, *Eduware*

"I really don't like most computer games, they're not lifelike enough for me. I envision real-time, 3-D simulations. What I really want to play is the NASA space simulator. Until then, *Rendezvous* comes the closest to that experience."

Andrew Greenburg *(Wizardry I, II, III; Wiziprint)*
Sargon III, *Hayden*

"I was a tournament chess player, with national rankings in the 1900s, before I got involved with computers. It's a pleasure to play against a computer program that will play a competent game. This program will challenge you and not just roll over and play dead when you make a good move. It's also superbly produced."

Joyce Hakansson *(Dream House, Kermit's Electronic Storymaker, The Great Gonzo in Word Writer; Ducks Ahoy)*
Centipede, *Atari*

"It matched my inabilities! The rollerball enabled me to master the game. It is predictable in a way that my mind worked, so I was able to enjoy it."

Chris Jochumson *(Graphics Magician; Arcade Machine; Space Quarks; Track Attack)*
Entrepreneur, *MacHarvard Assoc.*

"This is a simulation of running a software company. It has a lot to do with what is involved with running Broderbund, so it simulates how we make a living. It really hits home sometimes. You realize everything the president of the company has to go through just to keep the company in business."

Omar Khudari *(Agent U.S.A.; In Search of the Most Amazing Thing; Halley Project)*
Joust, *Atari*

"The way the controls react is fantastic, and the graphics are great. I usually only play *Joust* with another person. The tension of competition against another player is what really draws me to the game."

Timothy Leary *(Mindventure)*
Hitchhiker's Guide to the Galaxy, *Infocom*

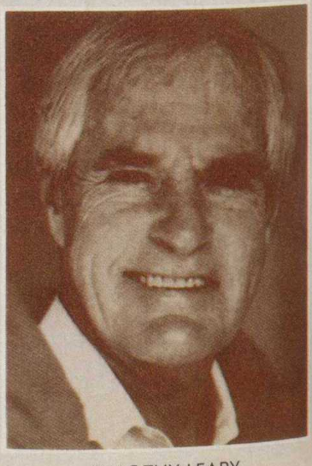
"This is the most literary, intelligent, adult game I have ever played on a computer. It forecasts a higher level of sophistication in electronic books. It paves the way for a whole new genre of hightone literary works being made interactive through the electronic mode."

Continued on page 74

ROBERT WOODHEAD

ALEXIS ADAMS

STU GALLEY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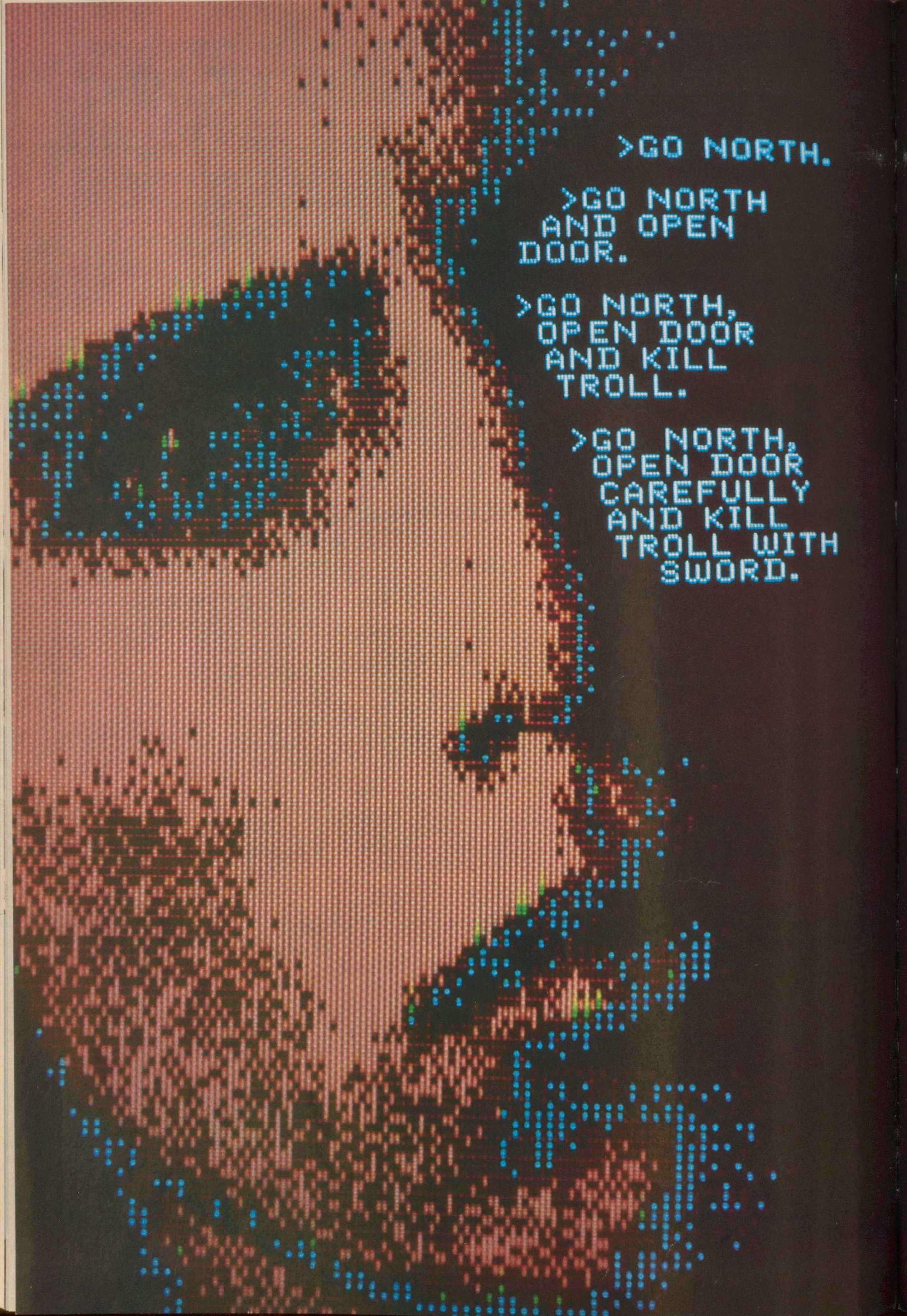

>GO NORTH.
>GO NORTH AND OPEN DOOR.
>GO NORTH, OPEN DOOR AND KILL TROLL.
>GO NORTH, OPEN DOOR CAREFULLY AND KILL TROLL WITH SWORD.

if yr cmptr cn rd ths...

Software companies mobilize their syntax as the Parser War heats up.

By SHAY ADDAMS

Designed and photographed by William Bramble

In war, weapons are only as good as the battle they're used in. For example, taking a lance to the Battle of Normandy might have provided our valiant men with a good laugh but it wouldn't have been particularly effective. In the Parser Wars—the war between the software companies making interactive text programs—words and how well they're understood are the weapons. Primitive parsers can only understand two-word commands ("get sword", e.g.) and often even that is too much for them. The quest to invent a parser that understands complex, complete sentences goes on apace. The pen may be mightier than the sword, but in *this* war, the parser has to be mightier than the "get sword."

The parser is the part of the program that reads a player's typed-in command by comparing the words with those that the programmer has included in the game's vocabulary. If it finds a match, the parser then sends numbers representing those particular words to another section of the program so it can respond with the appropriate message or picture which is stored in the data base on the disk. Loosely defined, the parser is the lifeblood of a text program.

In Cambridge, Massachusetts, Spinnaker's engineers leaped into a foxhole, where "they practically locked themselves in a room for months and only came out for air," according to Seth Godin, who spearheaded Spinnaker's line of Telarium adventures. On the opposite coast, Synapse programmers hammered away at an adventure-specific language called BTZ (Better Than *Zork*) for 18 months, half of which they devoted to working on the parser. (See *CE*, June, 'Building a Better *Zork*') Projects by other companies quickly escalated this software version of the arms race, which erupted into a full-scale Parser War when the resulting games finally met head-to-head on the battleshelves of Software City, Crazy Eddie's and Toys 'R' Us. Why so much effort to build a better parser? For one, an intelligent parser is the hallmark of the most successful company in the field, Infocom. Equally important, the latest vogue in adventure games stresses interaction and conversation with characters over the typical object-manipulation involved in "look rock" and "go taxi" adventures.

PARSER, SPEAK MY TONGUE

"From day one," Godin recalls, "we decided to go with as sophisticated a

if yr cmptr cn rd ths...

parser as we could, because it's important to simulate realistic character interaction as closely as possible." This meant developing a full-sentence parser that, like Infocom's state-of-the-art counterpart, could "understand" more parts of speech than the elementary two-word parsers that restrict the player to nouns and verbs. The parsers in the early Telarium releases, games like *Fahrenheit 451* and *Dragonworld*, met this criterion, but were comparatively slow when dealing with multiple commands like "get the rock then go west." Godin says they're continually upgrading the parser with each new game.

"We're improving the parser so the player can effortlessly talk to the people in the game." He says the latest model can deal with "at least ten parts of speech including adjectives, nouns, verbs, and direct and indirect objects. Right now, our parser can find seven different words and act on them: 'Mr. Burns, how many unaccompanied guests entered the building on Thursday?' This is important, because our new programs require you to ask questions of the characters. In *The Nine Princes of Amber* [now under development and based on Roger Zelazny's popular sci-fi series] *everything* hinges on character interaction; there's no inventory." Like the other Telarium adventures, it will be a graphic adventure.

Infocom designer Marc Blank and Brian Fargo, of Interplay Productions.

Brian Fargo, the 22-year-old programmer whose development house, Interplay Productions, created *Mindshadow* and *Tracer Sanction* for Activision, agrees on the significance of character interaction in adventures. "We're shooting for a more sophisticated parser that enables you to say things such as 'who are you, where is the ice cream?' to characters." He and an associate designed the current parser, which understands about 250 nouns and 200 verbs as well as prepositions and indirect objects. (A parser that understands indirect objects permits the player to say things like "hit rock with flint" and "give money to writer.") Fargo elaborates: "We're expanding the number of combinations of parts of speech the parser will understand, as well as boosting the vocabulary." Another big part of the parser's job is error-handling, how the parser responds to a command it doesn't understand. If you say "turn the wheel" and the program says, "Please rephrase that," you don't know whether it doesn't understand the word "turn" or the word "wheel." The more courteous parsers usually identify the unknown word, sparing a player at least some of the frustration usually associated with playing an adventure game.

Another familiar frustrating situation arises when an adventurer discovers he can't use a word that the game just used in a description. The game may say, "You see a cowering accountant," but when you type in "Kill the cowering accountant," the program responds "I don't know the word 'cowering'." That's because the original message "You see a cowering accountant" is stored in the program's data base (which holds all the game's descriptive passages) but isn't part of the game's vocabulary, which is stored in another section called the word tables. The parser works by comparing each word in your command with those in the word tables, not those in the data base of descriptive text. In other words, even the best parser doesn't always have the foggiest idea what it just said.

PENGUIN'S NEW PARSER

Penguin Software has been turning adventure games out regularly since releasing *Transylvania* in 1981. Appropriately, Penguin's first adventure to incorporate a full-sentence parser will be the sequel, *Crimson Crown: Transylvania II*. The new parser was over a year in the works and can cope with many more parts of speech in various combinations than could the original. According to Penguin President Mark Pelczarski, this expands by "at least 10% the types of problems a designer can put in a game." Prepositions, which make it possible to say "look under the rock" or "behind" it rather than simply "look rock," are especially important in this regard. Pelczarski concedes the now-raging Parser War is one reason for Penguin's upgrade to a full-sentence parser, saying "I suppose it is a selling point," but he says the main reason for doing so was "to take away the computer, make it more transparent, so people could use standard English and concentrate on the adventure."

Pelczarski worked for several months on conceptual groundwork before Jeffrey Jay joined the staff. A college student who converted *The Quest* for the Atari and Commodore 64 before going to work full-time, Jay "got involved in May of 1984, when we were deciding how we wanted it to handle things and started designing it on paper. By September, JJ had started on the actual coding, and the programming itself was disgustingly simple." *Crimson Crown* also introduces Penguin's adventure language, COMPREHEND. Written in assembly, it's an adventure-specific language with keywords that function like BASIC's

Marc Blank of Infocom dismisses Synapse's keyword approach as "just more bells and whistles, like adding graphics."

"AND," "FOR," and "IF". "It makes it a lot easier to write the games," explains Pelczarski. "With COMPREHEND, the game is actually written with AppleWriter or another Apple word processor." COMPREHEND, which houses the parser, turns that file into the final adventure. As Jay sees it, "We've removed the programming aspect from the writing of the game, so that when it's being created you can concentrate on the game itself. The programming is taken care of." A key strength of COMPREHEND, shared by Spinnaker's SAL and other adventure-specific languages, is that it enables Penguin to release a new game for several computers without doing lengthy conversions from one language to another. A custom interpreter for each system translates the COMPREHEND program into whatever language is needed for the different machines.

Penguin's *Crimson Crown* uses a new adventure language, COMPREHEND.

SIERRA STRIKES BACK

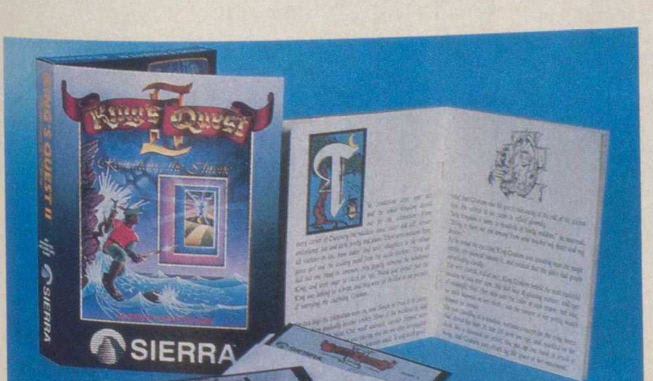
Sierra, whose classic graphic adventures always relied on a simple two-word parser, upgraded their parser when they released *King's Quest* in the summer of 1984. "With the success of Infocom, quite frankly, we came up with a full-sentence parser to remain competitive," John Williams explains. "It was a mixed bag for us. With a two-word parser you have more control over the player, because he can't type in as many oddball or unanticipated combinations of words. The advantage of the full-sentence parser is that people think in full sentences, not two-word phrases, so it's more natural." Sierra drafted Arthur Abrahams, then immersed in programming submarine systems, for the eleven-month project of engineering a full-sentence parser. The final product could handle indirect objects, so a player could say things like "give food to the man." In previous adventures, a player had to say "give food," then type in "to man" after the program asked him who he wanted to give it to.

Abrahams eventually returned to the sea, but Sierra's staff improved on the parser for *King's Quest II: Romancing the Throne*. "It understood adjectives before," say Williams, "but not nearly as well as now. And one of the biggest changes is in the use of the word 'and': it was ignored by the previous parser, but now you can say 'Get this and that' or 'Get this and kill the creature'." These are referred to as multiple commands, which essentially are a time-saving convenience that have been part of the Infocom games since the original *Zork.* (Even the Scott Adams adventures, which still use a two-word parser, now accept multiple commands for giving directions: North, East, East, etc..) "Every time we write a game we try to outdo ourselves," Williams says, "so you can expect to see improvements in the parser of our next adventures."

Sierra has been in the grapic adventure business since Roberta Williams created the genre in 1980 with *Mystery House*, so their development of a full-sentence parser was predictable. What surprised most "adventure-watchers" was the emergence of Imagic and Synapse as serious contenders in the fight. Imagic, like Activision, had racked up high scores in the now-battered Atari VCS market, but their first graphic adventures, *I, Damiano* and *Another Bow* (marketed by Bantam) have high-calibre parsers that give them a shot at victory in this battle zone. The latter, a Sherlock Holmes tale, uses a conventional parser, but writer/designer Peter Golden says "we found from the Holmes experience a way to create D," yet another adventure-specific language. "It took Mark Klein at least a year to develop D and its parser, which uses a modified *Eliza*-type routine that figures out what the input is and comes up with an appropriate response."

Eliza is a 1950's all-text program that imitates a psychologist. If you type in "I hate my sister," Eliza will find the keywords 'hate' and 'sister', then ask "Why do you hate your sister?" It doesn't really understand what you're saying the way a traditional parser or an orthodox

Continued on page 76



King's Quest II (Sierra) has a parser that takes multiple commands.

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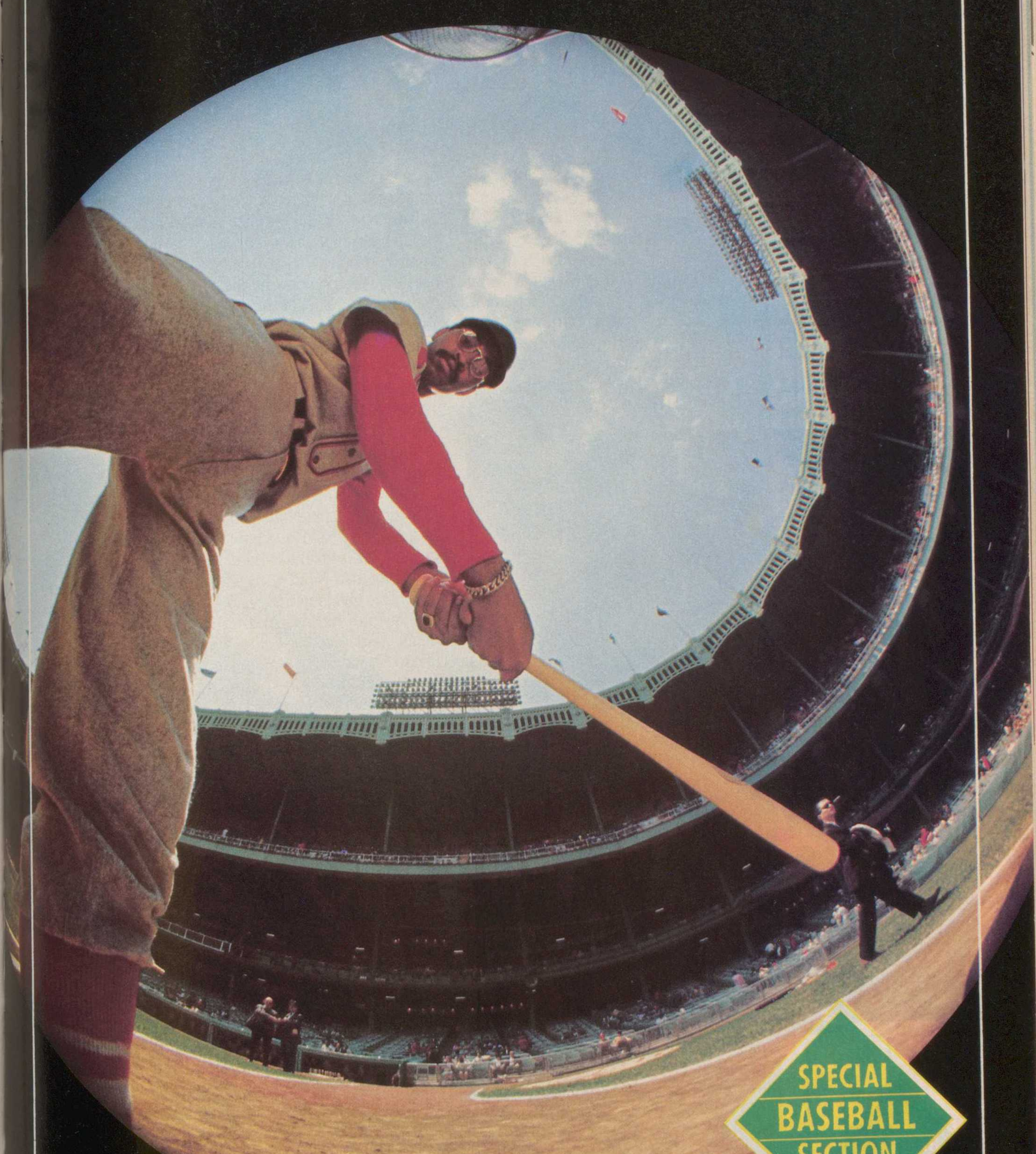
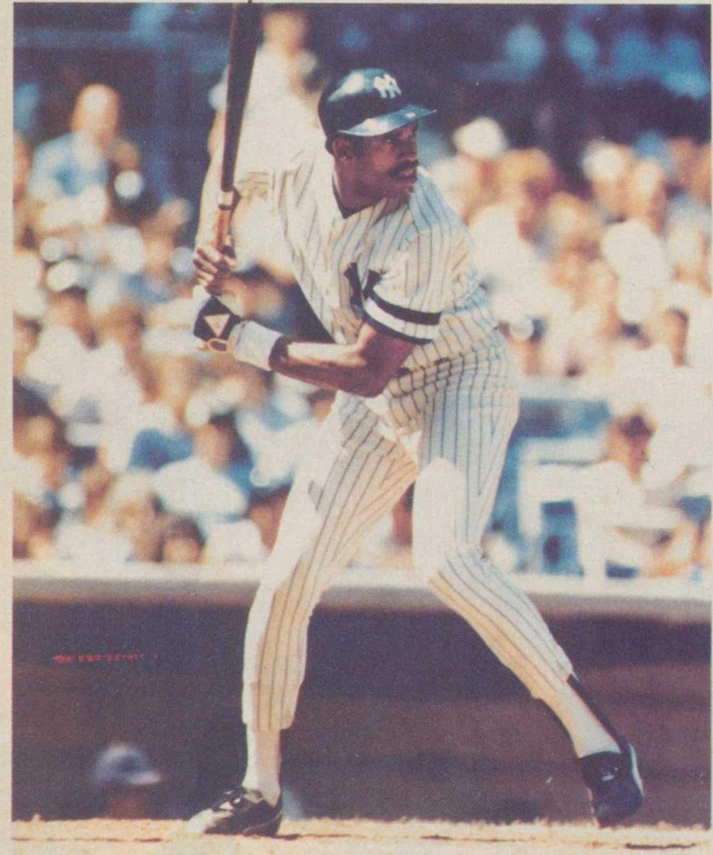


SPECIAL BASEBALL SECTION

GETCHA PROGRAMS HEAH!

By STEVE HANKS

The New York Yankees are in the midst of an early-season game and Dave Winfield, the team's star outfielder and 23-million-dollar-man, (he signed a ten-year contract in 1980) has just taken a swing worth about 23 cents. "I don't know what's the matter with Big Dave," the Yankees' peripatetic announcer Phil Rizutto remarks to the Big Apple television audience, "but his timing looks all fouled up. He's not driving his bat through the ball; not getting on top of it like he usually does."

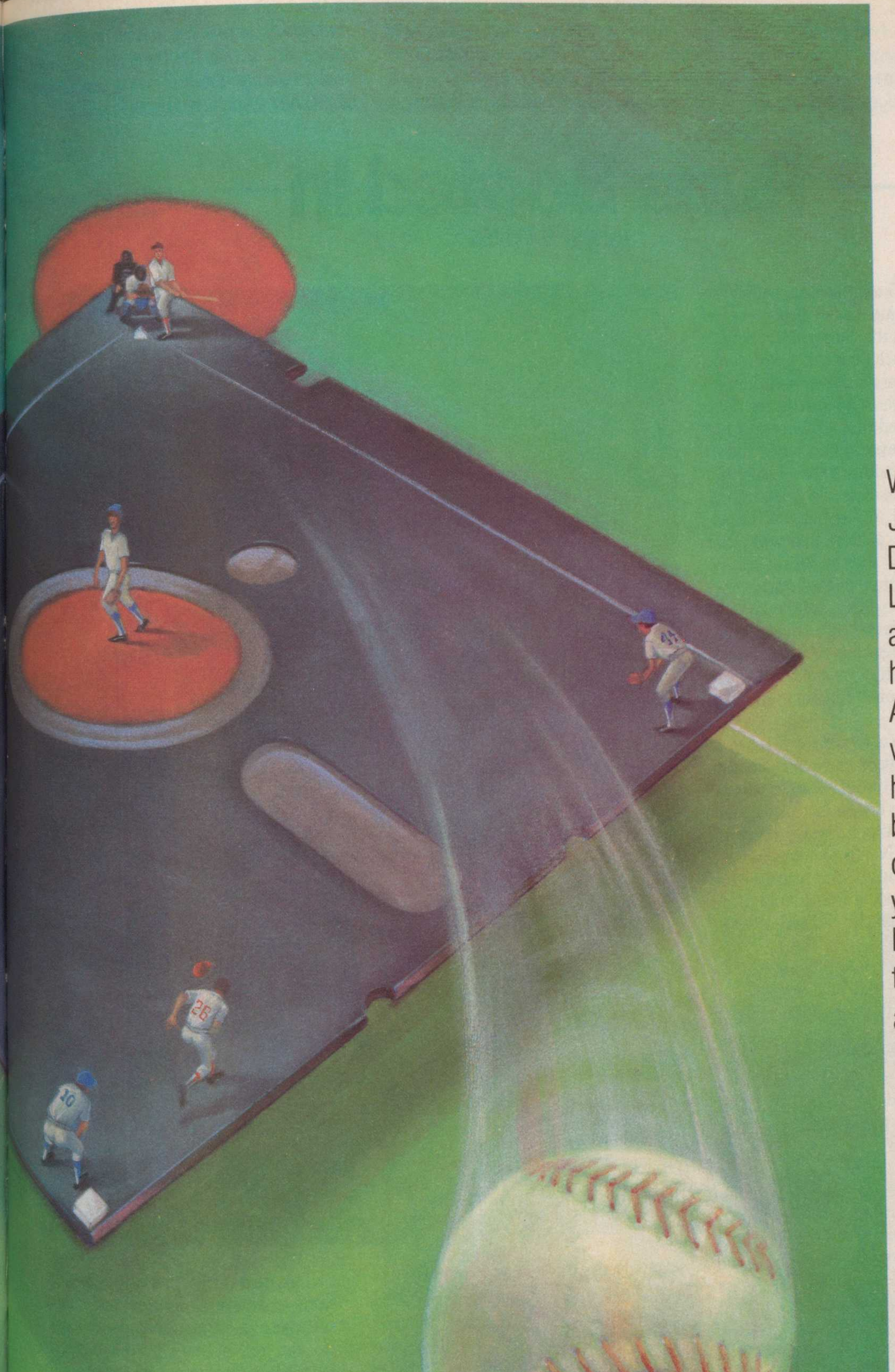


SPECIAL BASEBALL SECTION

If Winfield (who was hitting only about .240 at the time, or nearly 100 points under his 1984 average, which was second best in the American League to teammate Don Mattingly) needed a crash course to get back in the groove, he could take his own IBM ("though I'm not exactly a whiz on it") into the clubhouse and pop in the disc from *Batter Up*, the new computerized baseball training program which bears his name. He could instantly re-acquaint himself with the modes of hitting, whether it be balance, stance, bat grip, or his swing height against various types of pitches or pitchers. Why confer with team batting coach Lou Piniella when you can consult a hitting instructor on a disk?

Recently released when a spate of statistics-oriented computer baseball games, such as *APBA* and *Micro-League Baseball*, have hit the market, this first-of-its-kind "participant" program could not *specifically* tell Dave how he was being un-Winfield-like—he'd still need Piniella for that—but it could coach him in the basic philosophies, strategies, and techniques of hitting. And hitting is the science that Hall of Fame Ph.D. Ted Williams once called "the single most difficult thing to do in sports."

In addition to animated figures that demonstrate different hitting approaches at a variety of angles and speeds (with instructional messages from Winfield on the screen), the program (released by the Avant Garde Publishing Corp. of California, and available for the Apple II and Commodore 64 with 64K RAM, and the IBM PC and PCjr with 128K RAM for $35-$40) also allows for instant replays at three speeds or frame by frame, "hitting practice" against three types of pitching at four degrees of difficulty ("sandlot" to "major-leagues"), and a pseudo-video game called "Slugfest" which lets you play home run derby against eight styles of "major-league pitching" in four different ballparks. This "fluff and frills for fun part," as Winfield calls it (as opposed to the "meat and potatoes" of the training part), can be played by up to four people and the computer can record and store hitting statistics. But more beneficial for the would-be player or coach is the inclusion of Winfield's first instruction manual called *The Act of Hitting*, a clear, economical



What do Johnny Bench, Dave Winfield, Lou Piniella, and 'Batter Up' have in common? An obsession with the art of hitting a baseball. Can a computer make you a better hitter? Winfield thinks it can—after all, he endorsed the software.

text which complements what the computer program teaches.

Now the thought of Johnny Bench's "Baseball Bunch" sitting in front of a computer screen before calisthenics, batting and infield practice, and a game, may sound like an Isaac Asimov baseball science-fiction novel, but with *Batter Up*, Winfield and Avant Garde have brought skill instruction of the national pastime into the 21st century.

"This has a lot of things going for it over a book," claims Winfield. "You can't be the best you can be unless you know everything about the game, and a lot of books don't talk about all the different pitches you might see from a certain type of pitcher and how the ball reacts. In a

---

Runs Booted In

By JILL BARNES

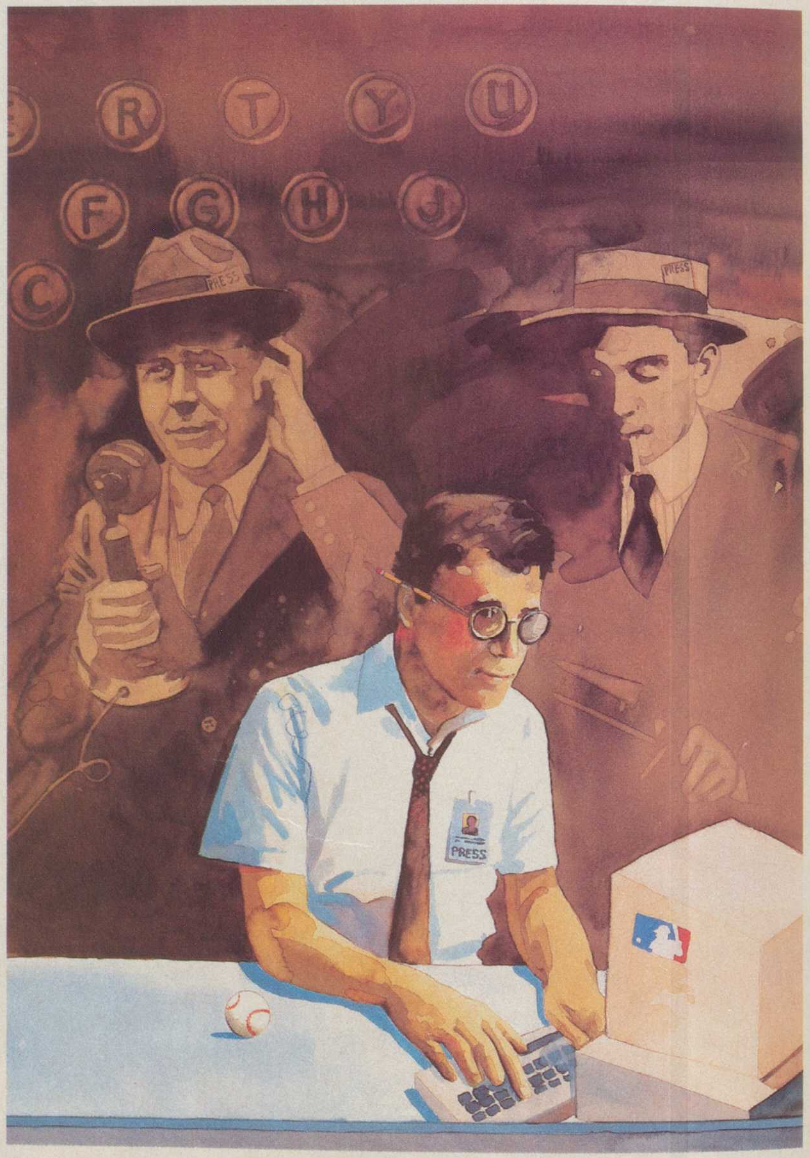
Given the 25-man roster, there are 650 major league baseball players on the 26 teams in the National and American leagues. Include players who come up from the minor leagues and then go back down, or those on the disabled list with injuries, and the number swells to about 1,000 players who have had at least an at-bat with a team during the season. The season is 162-games long, meaning those 26 teams will be involved in 4,212 games, and that's not counting playoffs and the World Series. Keeping track of what that many players do in all those games is enough to fill a computer. In fact, it fills several computers—at companies like the Elias Sports Bureau, the Sports Information Center and Sports Information Data Base.

Elias, a New York-based company, is the source of official statistical data for major league baseball's National League and also keeps track of American League numbers. Sports Information Center, of North Quincy, Mass., compiles the official American League statistics, and Sports Information Data Base, of Hasbrouck Heights, N.J., chronicles each pitch and every swing of the bat for New York's two home teams, the Mets and Yankees.

Elias has been using computers to log the material for the National League since 1980. "We started working on our software in late 1979," said Peter Hirdt, vice-president of Elias. "In 1980, we tested it and worked out any problems, then in 1981, we went on line to our clients."

Elias's clients are many. Besides the National League teams, it also serves the wire services (Associated Press and United Press International) and *USA Today*. "We compile all the stats from every game from independent sources," Hirdt said. "We don't ask the teams to do it. It would be too much extra work for them. If there's some discrepancy in what we have and what the team has, we talk it over with them."

Elias has used several different computer systems, and Hirdt declines to mention what the company is using now. "We don't want anyone tapping into the system," he said. But he will say Elias uses a redundancy setup, in which identical computers operate simultaneously with the same information. "That way if one goes down, we can use the other. We can't afford to be down," Hirdt said. There are 10 full-time workers and a few part-timers at the New York office, and it closes for only a few hours a day. Elias also does the National Football League and the National Basketball Association, but baseball—with its love of intricate and esoteric statistics—is the company's main business.



Elias not only provides baseball teams with simple figures such as batting averages and pitching records, it also can tell a team how a particular player does in certain situations. "For example," Hirdt said, "say a manager wanted to rest one of his better players. Instead of deciding on which game by saying 'Eenee, Meenee, Minee, Moe,' he could look at the printouts to see, maybe, that the player doesn't bat as well against a particular pitcher in an upcoming series. So he might pick that game to rest his star player."

program like this, as opposed to a flat, written text, you'll understand some of the concepts visually because you see the movement of the ball, the swing and the players. It's more exciting and keeps your interest that much longer. I realize, as we say in the booklet, that you can't automatically apply the small motor skills involved in playing computer games to the larger motor skills involved with batting. On the field, it's a whole different ballgame. But reflex reactions, hand-eye coordination, and the knowledge of batting technique *are* transferrable." In fact, Winfield takes his manual one step further than most technical guides by discussing various batting faults and how to correct them, how to deal with fear of

Elias also compiles a yearly record of National and American league player stats. In the *The 1985 Elias Baseball Analyst* (Collier Books), a baseball fan can get a taste of what managers and scouts see in all those statistics. The book gives a team-by-team, player-by-player, pitcher-by-pitcher breakdown of different situations such as how a batter or pitcher did in pressure situations, with men on base with less than two outs or with two outs. Look up Keith Hernandez of the Mets, for example, and you'll find not only that his 1984 batting average was .311, but he hit .366 at home and .259 on the road, and .331 with runners in scoring position and .357 with runners in scoring position and two men out.

"In the future we hope to do an encylopedia type book that will include a player's entire career," said Hirdt, one of the authors. "I think fans would be interested to find out, say, how Rod Carew did in certain situations throughout his career,"

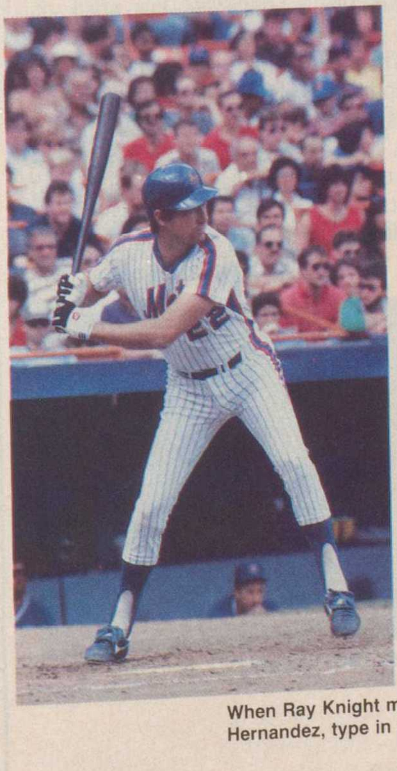
Joe Constanza, the statistician for the Sports Information Center in Massachusetts, boasts that his company has been using computers to track professional sports longer than any other company. "We got into computers in 1973," he said. The Center is less secretive than Elias about the brand of computer uses. It presently uses a Digital PDP 1170, but it started with an NCR. "We get the information by telecopier from the teams' public relations directors," said John Mulcahy, the general manager. "Every morning we take all the information from the previous day's games and put that into the computer to update our database stats. The teams can then call our computers on an '800' telephone number and access whatever they need. Each item has a special code."

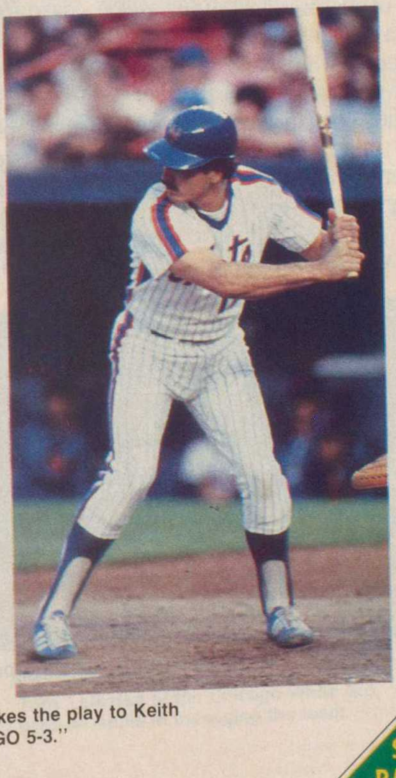
Sports Information Data Base (SIDB) is not officially affiliated with any team, but it does provide a new type of baseball service. "We give a play-by-play description of every play, an enhanced box score," said Bill Shannon, executive editor of SIDB. "We developed our own software, and right now we're just working with the Yankees and Mets.

SIDB uses its Sperry SP2 to print out what happens on each play. The players' names are programmed into a lineup card format on an 80 column computer screen and can be updated at the ballpark as players change during the game. The software can be adjusted to accomodate different computers. "Say the Mets are playing the St. Louis Cardinals," Shannon said. "Ozzie Smith comes to bat and hits a grounder to third baseman Ray Knight, who throws on to first baseman Keith Hernandez. You just type in "GO 5-3" (the numbers for the third and first base positions) and the printer will type out what actually happened on the field. It gives a little more information than a regular boxscore, which just gives at-bats, hits, etc."

Shannon says his system can give updated statistics, such as batting averages and putouts at any given time during a game, and can have complete team statistics 5-7 minutes after a game by hooking into a pair of Honeywell 66/27s in Lebanon, N.H.

SIDB has been in operation about five years and also does work for professional boxing and the Major Indoor Soccer League. SIDB's boxing work has included the number of punches thrown and landed in a fight, statistics that have been used on national television. The baseball software was tested during the 1984 playoffs and World Series. "Right now we've not charging the Mets or Yankees for the use of the software, and we'll do the same for any team that wants it. Who we do charge is the media for the information we gather," Shannon said. "We feel our company is more for historical research. If *Sports Illustrated* wanted all the boxscores from the month of August to see what a particular player did, we could provide that. The more information we can provide the more valuable the database. I've been involved with baseball for more than 25 years and I'm really excited about this. To keep score on a keyboard instead of paper saves so much time."





When Ray Knight makes the play to Keith Hernandez, type in "GO 5-3."

The coupling of Winfield and *Batter Up* was as natural as a smooth double play combination.

the pitch, and how to mentally handle a hitting slump.

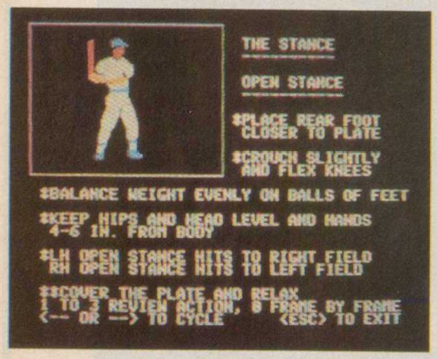
It's not at all surprising to find Winfield involved in such a venture. Not only is this 33-year-old the kind of physical specimen a computer loves (input his personal stats—6-foot-6, 230-pounds, 40-yard dash in around five seconds—and it'll print out "super athlete"), but his multi-faceted youth organization, The Winfield Foundation, has been using computers for four years. Add the fact that the 13-year major-league veteran and owner of a .289 career average is a self-proclaimed "businessman and entrepreneur" (although it's easy to be entrepreneurial when you're already making mega-bucks) and you realize that the coupling of Winfield and *Batter Up* was as natural as a smooth double play combination.

Winfield was initially approached with the idea of lending his name and talents to the project last year by business associate A. David Silver, a venture capitalist connected with Avant Garde (which intends to market similar programs dealing with other major sports). "He said it might be a good business match," recalls Winfield. "I felt that there was a lot of junk and duplication on the market in terms of instructional stuff, and I saw this as a challenge. I wanted to work with solid people who would develop a unique kind of program."

Winfield began working with editors on the instruction booklet during the summer, while the computer graphics team developed story boards for the program's animated tutorial section. The boards were subsequently sent to Dave for his ideas and changes. "I made some suggestions on things like positioning players," he says, "but I wasn't that involved with the computer program. I was extremely enthusiastic about the whole project, though, especially the book. But I didn't realize it would require so much time to pour out the hitting information that went into the book [which also goes into conditioning and pitching, using photos and diagrams]. There are many books on the subject [Winfield cites Ted Williams' *The Science of Hitting* and Charlie Lau's *The Art of Hitting .300* as two of the best] and I don't subscribe to any one particular theory. Some people can hit, but they can't explain what it takes, can't describe what it's all about. I've used many different methods from many successful people. What I try to articulate here are not only some of the fundamentals that apply to *your* ability, but the other keys to playing baseball; like having as much knowledge as you can, being in shape, understanding strategy and the things that the opposition can do to you and you can do to it. For instance, in the program we spell out the options you have when you're at bat with second and third and one out. Of course you're trying to get the run in, but how do you mentally approach hitting in that situation?"

While Winfield praises *Batter Up*'s computer graphic artists and programmers for "applying what I said pretty well," the screen diagrams and animation do have some flaws. One submenu illustrates the closed, even, and open batting stances, all of which seem a trifle

Continued on page 82



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THE STANCE

OPEN STANCE

*PLACE REAR FOOT
 CLOSER TO PLATE

*CROUCH SLIGHTLY
 AND FLEX KNEES

*BALANCE WEIGHT EVENLY ON BALLS OF FEET

*KEEP HIPS AND HEAD LEVEL AND HANDS
 4-6 IN. FROM BODY

*LH OPEN STANCE HITS TO RIGHT FIELD
 RH OPEN STANCE HITS TO LEFT FIELD

**COVER THE PLATE AND RELAX
1 TO 3 REVIEW ACTION, 0 FRAME BY FRAME
<-- OR --> TO CYCLE        <ESC> TO EXIT
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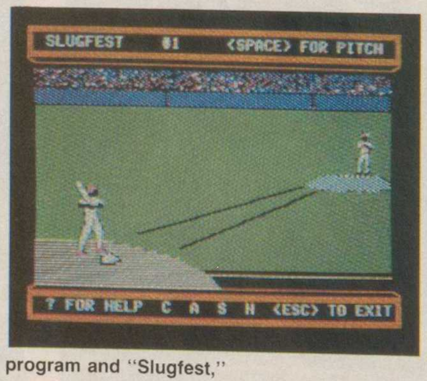
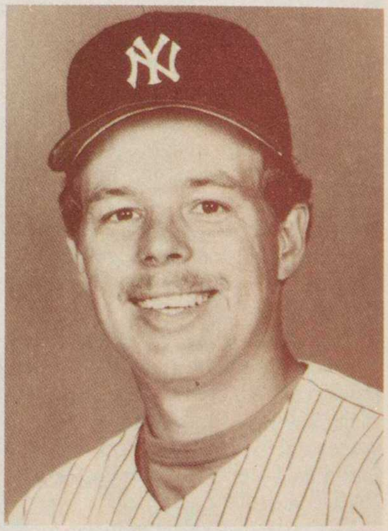

SLUGFEST #1 <SPACE> FOR PITCH
? FOR HELP C A S H <ESC> TO EXIT

Dave Winfield's instructional program and "Slugfest," from Avant Garde's *Batter Up*.

By GARY MORGENSTEIN

When Dave Winfield meets Yankee teammate Butch Wynegar on the field of mortal computer combat, he better make sure all his video fielders are on their toes, his video coaches don't give away the signs, and he doesn't get distracted by any video ladies in halters.

That's because Wynegar's a longtime gamer, and if Winfield's not careful, the All-Star catcher just might run him off the, er, terminal.



Yankees catcher Butch Wynegar

"Oh, I'm an aggressive type of manager," says Wynegar. "I love to play the hit-and-run, steal, squeeze, sacrifice. I play an exciting brand of ball.

"Long before computer games, I was hooked on baseball board games, specifically the *Ethan Allen Baseball Game*, you know, the one with the cards and spinners? Yeah, as a kid I kept extensive statistics, made deals, had my own league, everything. I may be a baseball player, but I'm also a big fan of baseball," continues Wynegar.

When it comes to using personal computers at home, baseball players are just like anyone else. Their wives use micros for domestic and career purposes, their kids use the micros in school, and the players use the micros to stay up until two in the morning searching for a killer.

"My wife Brenda and I bought an IBM PC a few years ago," says Oakland A's star outfielder Dwayne Murphy. "She and our kids use the machine, so I have to wait my turn. And usually my turn comes late at night when I plunge into one of the mystery games like *Deadline*.

"I have to be honest, when we first got the computer, I wasn't sure about it. Like anything else, once you get comfortable with it, you enjoy it more. I'm not very good at video games and never really cared that much about them. But I do love mysteries.

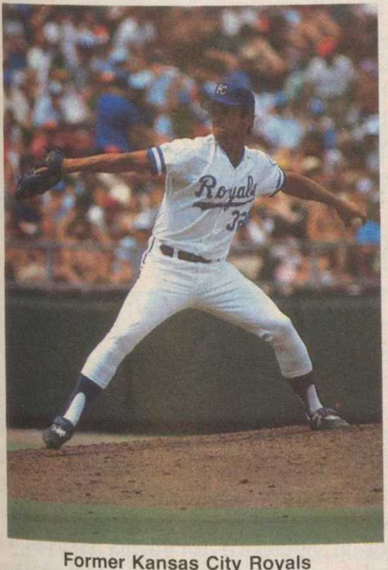
"So it was a natural for me to get a mystery game. Took me months to solve *Deadline*. Man, I put a lot of hours into it, staying up until all hours of the morning. After I solved that, I immediately went out and bought *Infidel* (another adventure game).

"Mysteries are my real passion, perhaps because it takes *so* long to figure out, you really have to use your mind, and it's such a challenge. And relaxing. The interesting by-product is now when I watch mysteries on television, I see little clues that before I got the computer mystery game, I wouldn't have noticed," says Murphy.

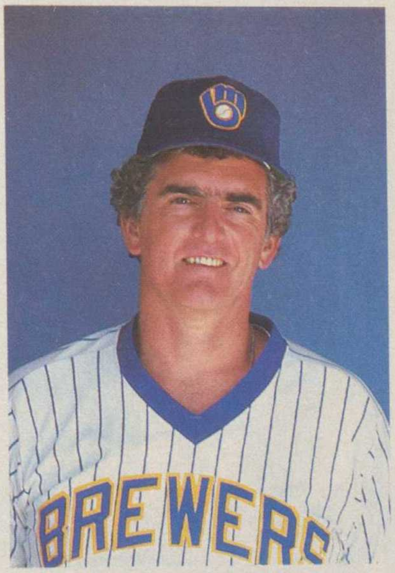
"Now I can sometimes figure out the ending of a TV mystery show around the time of the first commercial, and sometimes I see how things aren't quite as plausible as they should be. Helps when you've had to *draw* a whole house on a computer just to solve a mystery," concludes Murphy.

Wynegar uses his Apple for adventure games like *Zork* and to learn how to play bridge.

"The beauty of computers is the varied uses you can get out of them," explains Wynegar. "If I want to learn how to play bridge, use my head, I can get a game to teach me how to play. Or if I want pure escapism, I slip in a *Zork* and hunt for treasure.



Former Kansas City Royals pitcher Larry Gura



Milwaukee Brewers coach Larry Haney kept stats on an Apple.

"Aren't many ways in life you can get such non-repetitive, entertaining entertainment," says Wynegar.

Speaking of entertaining entertainment and non-repetitive action and challenges, what about the application of computers for baseball players' careers? Neither Wynegar nor Murphy use their machines to keep their own statistics, though Kansas City pitcher Larry Gura and Milwaukee Brewers coach Larry Haney did, at one time, try to feed their stats into a system.

"It's pretty complicated to get into it now, but I did have a small computer which I'd hook up into the television set in the hotel when I was on the road, and try and keep track of opposing players," says Gura. "But the cable system in the hotel just didn't allow for this to work smoothly, so now I keep track of my opponents by hand."

"It's very time-consuming, very expensive, and just wasn't worth it for me to bring the computer on road trips," says Haney, who at one point had planned to use his Apple IIe to design a system to scout all the players in the American League. "I wanted to study which hitters hurt us most in what situations." However, Haney found it easier to use the club's data.

That doesn't mean Haney chucked his Apple out the window. "Oh no, I get a lot of use out of it, well, my *family* gets a lot of use out of it," says Haney. "All three of my sons are very adept at the computer, and I try and encourage them as much as I can.

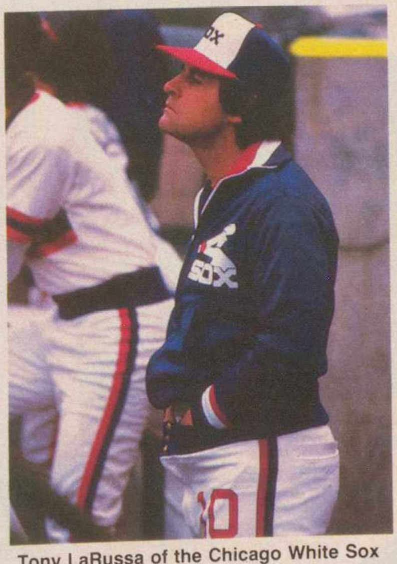
"The way the world's going, everything, and I mean everything, is going to be dependent on computers, so they better understand the machine as best as they can," concludes Haney.

Players can hunt for treasures and search for killers and hope their children don't tap into Pentagon secrets, but the obvious question is whether computer use for the day-to-day deployment of strategy is really worthwhile.

"It's a tool," says Chicago White Sox manager Tony LaRussa, who uses an Apple II to supplement his managing. "Especially when we're dealing with as variable a sport as baseball. A very human sport. I know it sounds rather cliched, but a computer is just a machine. It can tell you certain tendencies of certain batters against certain pitchers on certain counts in certain ballparks. But it can't tell you if a guy's upset about something that happened to him that morning.

"I think, like so many wonderful inventions, computers can be overrated, not because of anything inherent about the machine, but because people tend to view them as some sort of panacea," says LaRussa.

Still, it's a whole lot better than flicking a spinner. "That was the worst part about *Ethan Allen Baseball*," recalls Wynegar. "When you'd rip the card, the spinner would get stuck, you wouldn't get the results from the players you should've, and all your stats would get loused up."



Tony LaRussa of the Chicago White Sox uses an Apple in managing the team.

YOU HAVE UNTIL 2061 TO COMPLETE THIS PROGRAM

Tom Snyder's new program, *The Halley Project*, takes you through the cosmos at light speed. Only qualified space cadets, please.

By WILLIAM MICHAEL BROWN

SPECIAL SOFTWARE REPORT

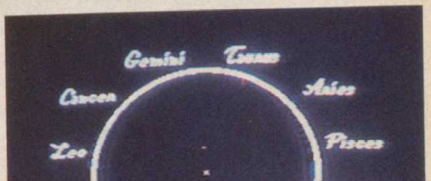
A lot of eyes on the skies—that's what it's going to be like in a few months, when Halley's Comet returns to the solar system for the 28th time in recorded human history.

Actually, it's not really accurate to say, "returns to the solar system"—Comet Halley (as astronomers prefer calling it) has actually been semi-officially "back" in our little corner of the universe since October of 1982, when two Cal Tech astronomers using the 200-inch telescope at Mount Palomar in Southern California spotted it. Halley was returning from a sort of Happy Hunting Ground for comets called the Oort Cloud, which astronomers theorize exists many millions of miles beyond the orbit of Pluto. As far as most of us are

concerned, of course, Halley won't really be back from its 75-year journey until November of this year, and March and April of 1986, when the comet will make its closest approaches to the Earth: less than one astronomical unit.

While most of us remember the names of at least a few of the major planets—and with all the fairly recent flybys of Jupiter and the outer planets, some of us have even learned the names of a few moons. How many remember enough high-school astronomy to even recognize Canis Minor? Or Aries, Scorpio, Taurus, or any of the other constellations in which Halley will appear in our sky? How many of us have even heard of the Oort Cloud, or an "astronomical unit"? (It's the mean distance from the Earth to the Sun, by the way—around 92 million miles.) And of those who do, how many will understand enough of celestial mechanics to make sense of the wiggly and eccentric path Halley will appear to take, as it flashes past us to its perihelion around the sun, and then back out through the rings of planets again?

Those kinds of questions are going to seem a lot less than academic in the months ahead, when interest in heavenly phenomena is going to reach a kind of fever pitch around the world. Astronomers have so far predicted that many people may find the apparition of the comet a little disappointing. It will be rather farther away from us, for instance, than it was during the 1910 appearance, when Earth passed through the comet's tail and superstitious folks all over America bought nostrums and gas masks to ward off an expected influx of cometary "poisons." Nor is it likely to be as spectacular as the visitation of 837 AD, when the comet made its closest recorded approach ever: 3 million miles away, in a blazing display that stretched



The Halley Project **requires you to know all 12 constellations in the Zodiac.**

halfway across the night sky for a solid month.

Chances are, though, that nobody who's ever wondered at the heavenly spectacle of the Milky Way on a clear, cold night is going to want to ignore an astral phenomenon that occurs just once every 75 or so years—a once-in-a-lifetime show for everybody but a few people like Samuel Clemens (the birth and death of the author of *Huckleberry Finn* just happened to coincide with the 1835 and 1910 apparitions of Halley). This will be your one shot; Halley isn't predicted to return again until 2061. Furthermore, right now is the first time in history that so many human beings have paid so much serious attention to one comet (unless you count the ill-timed Kohoutek, a no-show a few years ago after considerable advance hype). As this is written, the International Halley Watch is organizing thousands of professional—and amateur—astronomers into a vast, coordinated network of ground observers whose data will be cross-correlated with astronomical observation projects aboard high-altitude airplanes, upper-atmosphere balloons, rockets, and from Earth's network of astronomical satellites—not to mention five spacecraft that will actually "visit" the mysterious intruder, including the European Space Agency's *Giotto,* which, in March of next year, is expected to pass within a mere 310 miles of the comet's nucleus.

The results of all these individual projects will become part of a Halley archive that will serve astronomers as their main database until probably well into the next century. And the IHW is convinced that amateurs—from Swiss alpinists armed only with binoculars, to a class of U.S. high-school students with a 6-inch reflector—will be making significant contributions to the archive, just as they have in many other important discoveries.

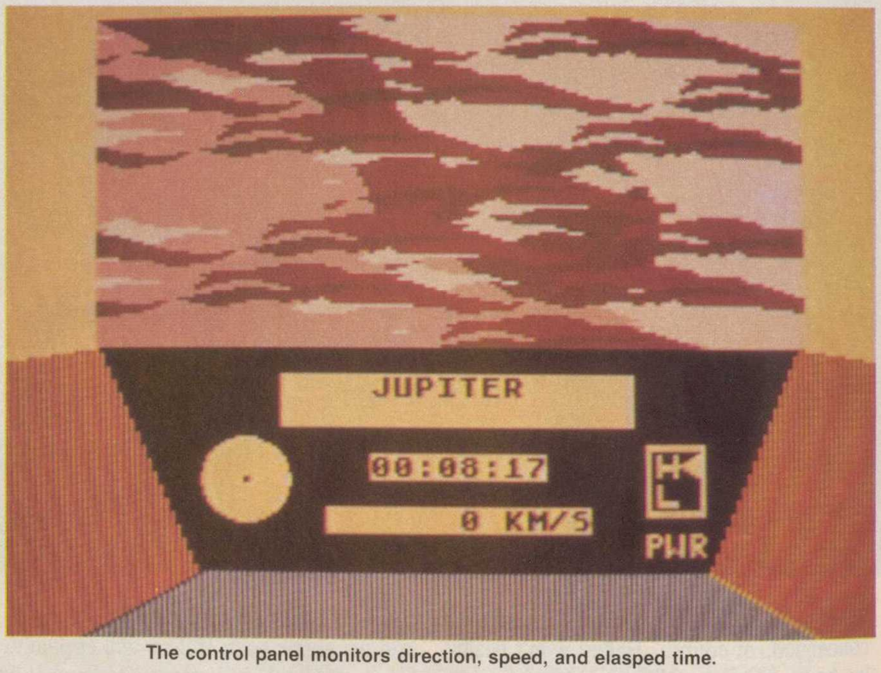
Whether you want to join the Halley Watch officially, or just understand something about what's going on, there's one piece of computer software out there right now that can take you from utter ignorance of the universe to a good working knowledge of many of the more important facts about our solar system—and do it, moreover, about as painlessly as playing *Pac-Man.*

Its name is *The Halley Project: A Mission in Our Solar System,* by Tom Snyder Productions, and it's available for the Atari, Apple, Commodore 64 and IBM PC from Mindscape. Part educational software, part video game, *The Halley Project* is designed around a highly accurate, real-time simulation of almost the entire solar system, including the sun, all the planets, and most of the moons. Although aimed mostly at youngsters, it will also appeal to adults.

The Halley Project casts you as one of a group of pilots selected to fly space missions throughout the solar system from a secret base located somewhere within the nucleus of Halley. All of the ten missions you'll fly are considered training missions. If they're completed successfully, you will be advanced in rank (there are ten ranks, from "Raven" to "Starbird"), and when you reach the highest rank, you'll be allowed to participate in the top-secret Halley Project itself. You're supplied with a spaceship, complete with some simple navigational aids, a view screen, and propulsion in the form of both a regular, low-speed drive and a "Hyperspace" warp drive that allows you to traverse millions of miles in a few seconds.

The simulated spaceship is extremely simple. Your view throughout most of the game is of a cockpit control station with a large view screen, and a control panel with indicators showing the direction you are headed relative to the view you're seeing out of the screen, which propulsion mode you're using, your current speed in kilometers per second, and how much time has elapsed for the current mission. A fifth indicator—which, unless you're already a solar-system whiz, is going to remain blank most of the time—is your "Planet/Moon Finder," a navigational device that works with a locator in the view screen to identify, and give your distance from, any planet or moon you come within close range of. Your ship also comes equipped with one more navigational aid: a circular long-distance "radar" screen that gives the relative positions and distances from your ship to all nine planets, the sun, and anyplace else you have to go.

Using these devices is equally simple. The ship's propulsion systems can speed you forward, back, left or right; adding speed in any of these directions is accomplished with a simple joystick push in the appropriate direction. Since your ship can rotate a full 360 degrees around its own axis, regardless of the direction you're actually traveling in, you can get a complete view of the universe around you by just holding the joystick fire button down and pushing the joystick left or right. Changing the propulsion mode is accomplished with a keyboard toggle. Shift into "low" and any speed changes you make with the joystick are slow and gentle; if you want to get somewhere far away fast, toggle into "high," and hold the joystick forward until you reach the appropriate speed. At 250,000 kilometers per second, warning buzzers will begin going off, and at 300,000 kps (the speed of light), you'll automatically shift into hyperspace. At any time, you can halt your ship by pressing the space bar.



The control panel monitors direction, speed, and elasped time.

If you're in hyperspace, one press brings you to an instant stop; at sub-light speeds, each touch halves your current speed.

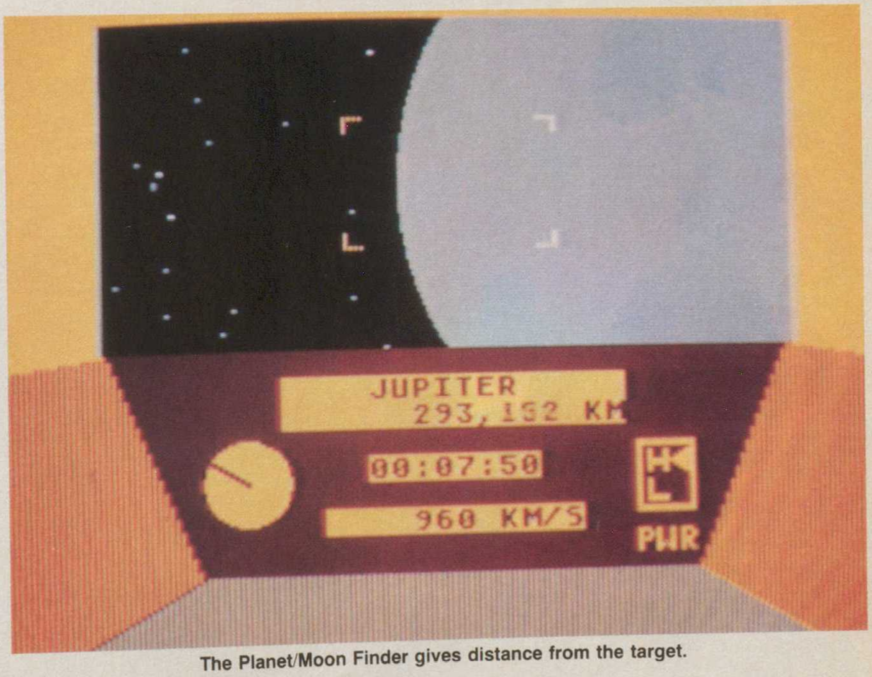
So far, so easy. And slightly unrealistic, in that hyperspace, so far as contemporary physics is concerned, simply doesn't exist, and "putting the brakes on" at 16,000 mph takes a lot more than stomping on a pedal. To their credit, the *Halley Project* designers make a point of admitting in the rulebook that these two adjustments in the gameplay are unrealistic—but necessary.

They're necessary precisely because just about everything else in the program *is* so realistic. As anyone who has followed U.S. space missions (such as Mariner and Explorer) to the outer planets knows, getting a spacecraft from the Earth to the orbit of a planet as far away as Jupiter takes months—even years—of travel time. In *The Halley Project*, the orbits, speeds, and relative distances of every planet that circles the sun are accurate down to the last meter. So accurate is this simulation that, if you wanted to take a trip from Earth to Jupiter at speeds close to those of actual space shots, *Halley Project* designers claim that you'd better be prepared to leave your computer on for as long as four months. Solely on its ability to communicate the immensity of the distances within something as (on the Universe's scale of things) small as our own solar system, *The Halley Project* rates as a fascinating piece of simulation programming.

But it doesn't end there. At the beginning of each mission, a title screen will give you your destination; in the early stages, it will usually be just the name of a planet or moon somewhere in the solar system. Once you're got that, press any key, and you're off—blasting away from the secret base on Halley, watching the blazing comet, complete with shimmering tail, as it slowly recedes on the view screen.

Your first job will be to determine where the destination currently is relative to Halley—and be ready, because if you don't know the names of all the planets, plus their distances from the sun, you're going to be out of luck. If you're someone who's managed to commit this to memory (it isn't hard—and the first lesson *Halley* has to teach for those who don't know it), your next assignment is to figure out how far you'll have to travel to get there.

This involves flipping over to the long-range radar screen, which replaces the main cockpit view whenever the appropriate keyboard toggle is pressed. Since Halley is essentially traveling through the solar system (not orbiting within it like the rest of the planets), each mission begins at Halley's current location. The radar screen always shows you as the center of the circle, so using it can be a little disconcerting at first. However, you can manipulate the radar image, pulling the joystick back and forth to view the whole system at various magnifications. Once you've located the sun, which is always marked by an extra-bright dot, it's easy to count orbits out from the sun until you locate your target. One more manipulation—putting the dot that represents your target planet on the outer edge of the radar circle—gives you an instant readout of its distance from you.



The Planet/Moon Finder gives distance from the target.

Then the real fun begins. Around the edge of the radar circle are the names of the constellations on the ecliptic—that band of "fixed" stars, also known as the Zodiac, that encompasses the paths that the earth and other planets appear to take around the sun over the course of the year. Noting which of those constellations your target appears to be in at the moment, quickly flip back to the cockpit view, and begin rotating your ship. You'll be trying to find that same constellation, so that you can line up the nose of your craft with it and head in that direction.

There are no labels on the stars visible through that screen, so you're going to have to learn to recognize all 12 constellations just by looking at them. As an aid to those who can't tell Pisces from Scorpio, the game comes packed with a "Simple Star Chart" that gives each constellation, picked out accurately in stars of sixth magnitude or brighter (those which can usually be seen in the night sky by anyone with good eyesight), along with good rulebook advice on how to pick out constellations by reference to stellar groupings.

Once you've spotted your destination stars and gotten lined up, it's time to step on the gas. Getting there, while more than half the fun, can also be pretty tricky in *The Halley Project*. Completing each mission successfully means visiting several moons and planets in the order they're given to you; once you've gotten to one destination and landed on it, you'll be given another destination, until you've completed the mission—and that's all. But the missions are also timed, and a list of target times are printed in the manual. Although failing to meet the printed times won't keep you from advancing in rank, it can have a real effect on your qualifications for the final, mysterious 11th Halley Project mission—so it's a good idea to start learning how to get around the solar system as fast and efficiently as possible. Using Hyperspace drive a lot is obviously the best way, but in using it, you can often overshoot your mark, and waste time backtracking at sub-light speed.

Whatever combination of speeds you pick, however, you have another problem. Because of the realism of the simulation, getting into the neighborhood

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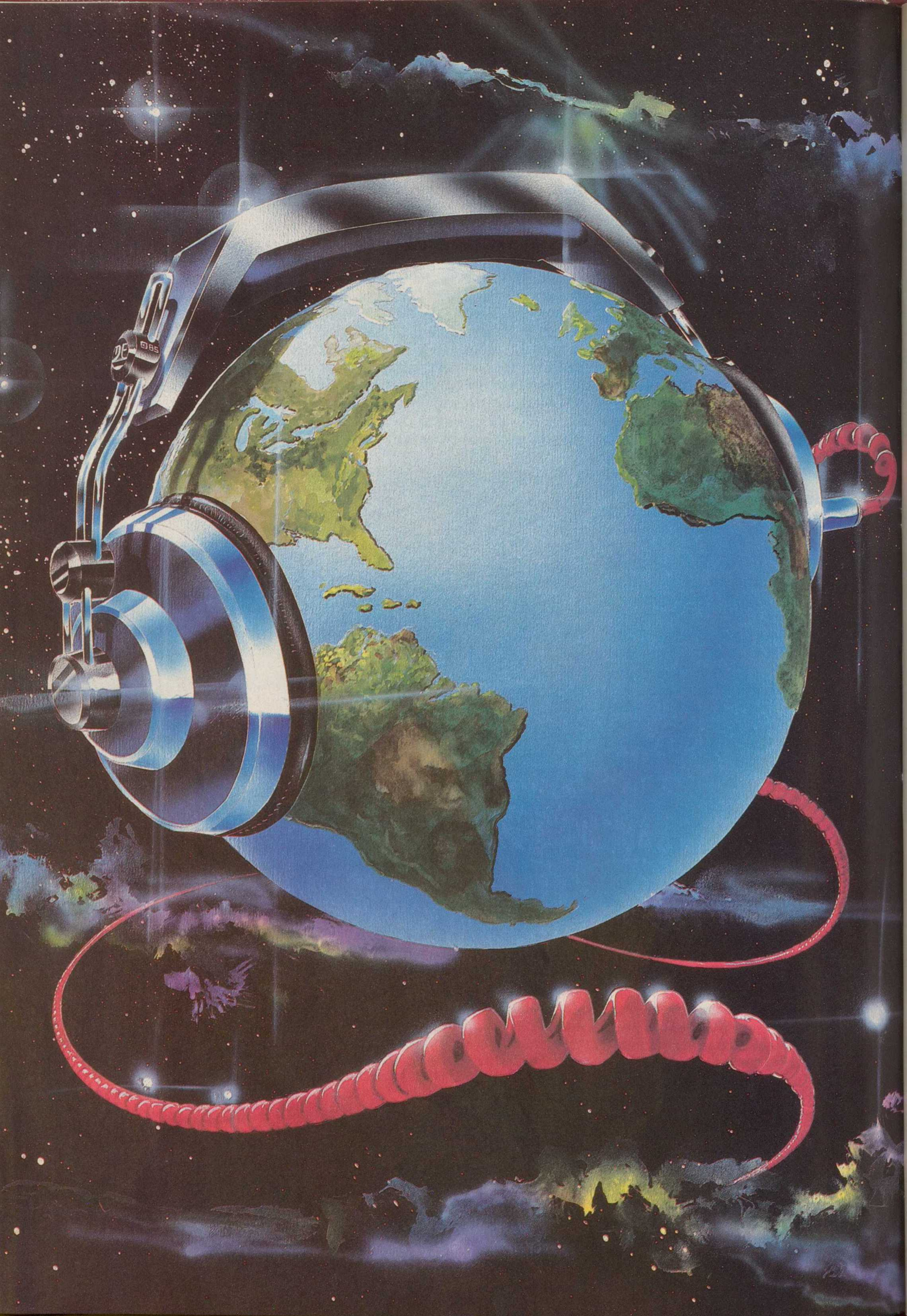
ME ©85

ET, PHONE US... COLLECT

By T.A. HEPPENHEIMER

Is there anybody out there? The folks in the SETI programs are waiting to take your call.

From the time the first man looked up into the night sky and saw all those twinkling lights, men have wondered if there was sentient life somewhere else in the universe. This question has never lost its interest, as evidenced by the ongoing popularity of science fiction books and films. After all, where would sci-fi be without bug-eyed monsters or benevolent superior intellects from some distant galaxy? Even the US government takes the question of extraterrestrial life seriously enough to underwrite SETI (Search for Extraterrestrial Intelligence) in an attempt to get an answer.

To most people, SETI is an occupation as lonely as being a Maytag repairman. A radio astronomer points his dish toward some star, twiddles his dials, and waits...and waits...and waits. After he's had enough or his funding runs out, he calls it quits. (So far, no one's quit because he got an answer.)

That might have been a good description of 1960s-vintage searches but today, as in everything else, computers are transforming SETI. Increasingly, SETI is becoming part of standard radio astronomy, an activity that engages thousands of researchers around the world, along with dozens of radio telescopes. The current trends are toward the building of increasingly sensitive and sophisticated receivers, which use techniques of pattern recognition in their search for signals from Out There. At major observatories the most advanced receivers will operate in purposeful, directed searches for life. And as their designs become standard, similar instruments will operate full-time, riding piggyback on the astronomers' regular observing programs. These instruments—not the astronomers—will do the patient waiting, but will grab some human when something interesting turns up.

The shape of SETI today is unfolding in a commonplace government building, a two-story group of offices at NASA's Ames Research Center, in Silicon Valley. Outside, next to a reserved parking space marked Director of Audit, is another space marked Chief, SETI Programs. That space belongs to John Billingham, a cheery Britisher. His longstanding fascination with SETI kept him going even when Senator Proxmire was citing the program for the Golden Fleece Award, as a prime example of waste in government. Down the hall is Bernard Oliver, the vice-president of research and development at Hewlett-Packard. His friends call him Uncle Barney. Other offices line the corridor. Radio astronomers such as Jill Tarter run in and out; submarine-hunting aircraft come in to land at the adjacent naval base and break up the day.

This group has a budget of $1.5 million. ("It isn't big enough," says Uncle Barney.) They are there to develop the idea that Oliver established in 1971: that SETI shouldn't just search at one frequency, but should cover as large a band of frequencies as possible, improving their chances of actually finding something. The way to do this is to receive the cosmic radio waves with a paraboloidal dish, then sort them into a very large number of "frequency bins," closely-spaced narrow channels. If one of those channels shows a large spike of received energy, it might mean that aliens are broadcasting with a narrow-band transmitter, tuned to a precise wavelength. With the many narrow channels, this spike can stand out. It can not only be distinguished from the surrounding cosmic noise; it can be identified as a true extraterrestrial signal, rather than the interference from someone's faulty distributor, a hundred miles away.

The NASA signal analyzer is to be ready in 1988, and will pick up alien signals even if they are totally buried in noise from natural sources. The system breaks up radio signals into wavelengths much like a prism diffracts light. It receives its raw data from a radio telescope operating in the gigahertz range—the standard range for observations—and will cover a bandwidth of ten megahertz. To do this, bandpass filters begin by sorting the received and amplified radio noise into frequency bands, each 1000 hertz wide. Then these run through a fast-Fourier-transform program. This is a computer routine that runs in real time, sorting the data into the final ten million bins, each with a bandwidth of only one hertz. The fast-Fourier-transform is a

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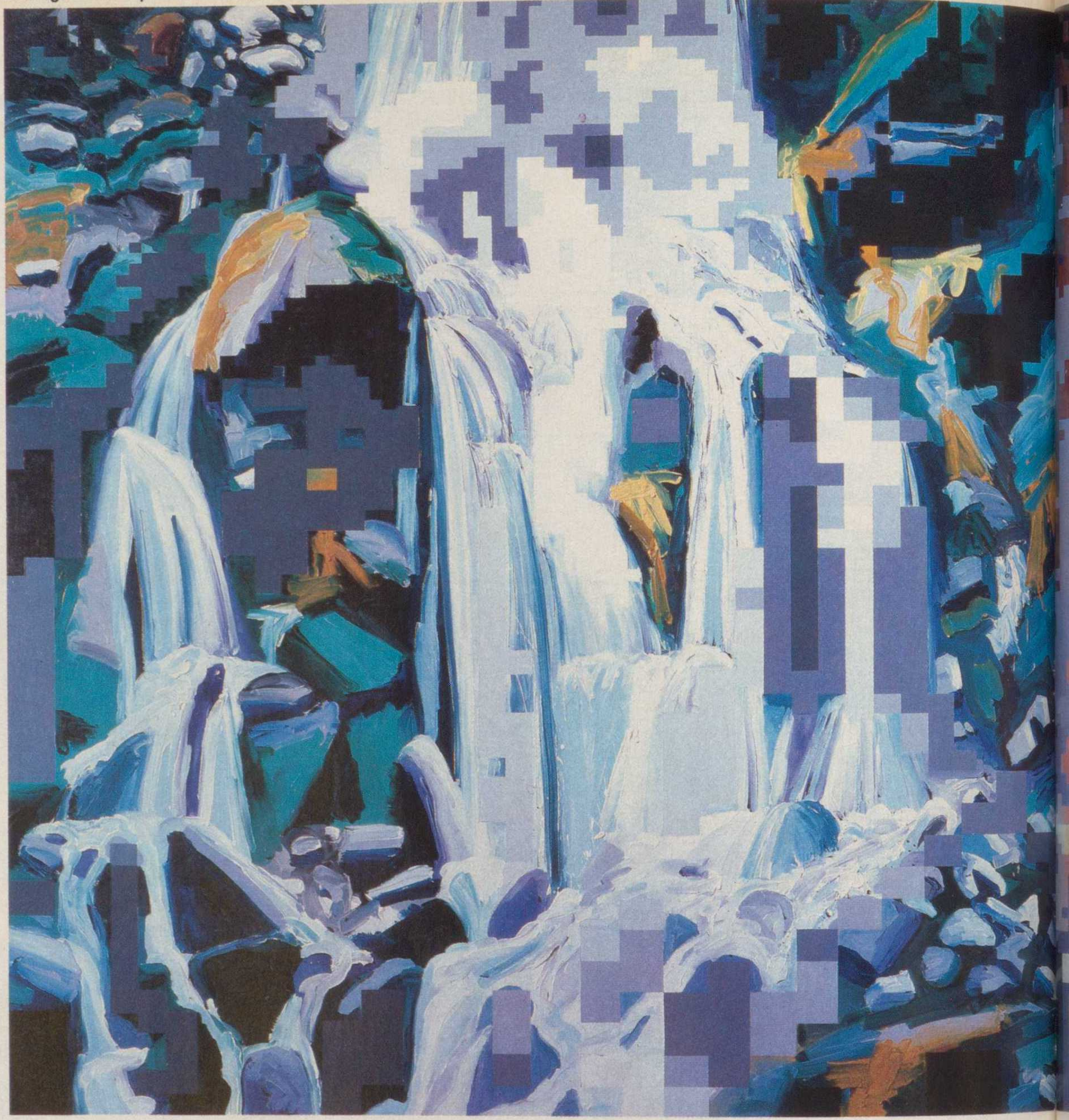
Average Landscape #2 © 1984, Steve Miller



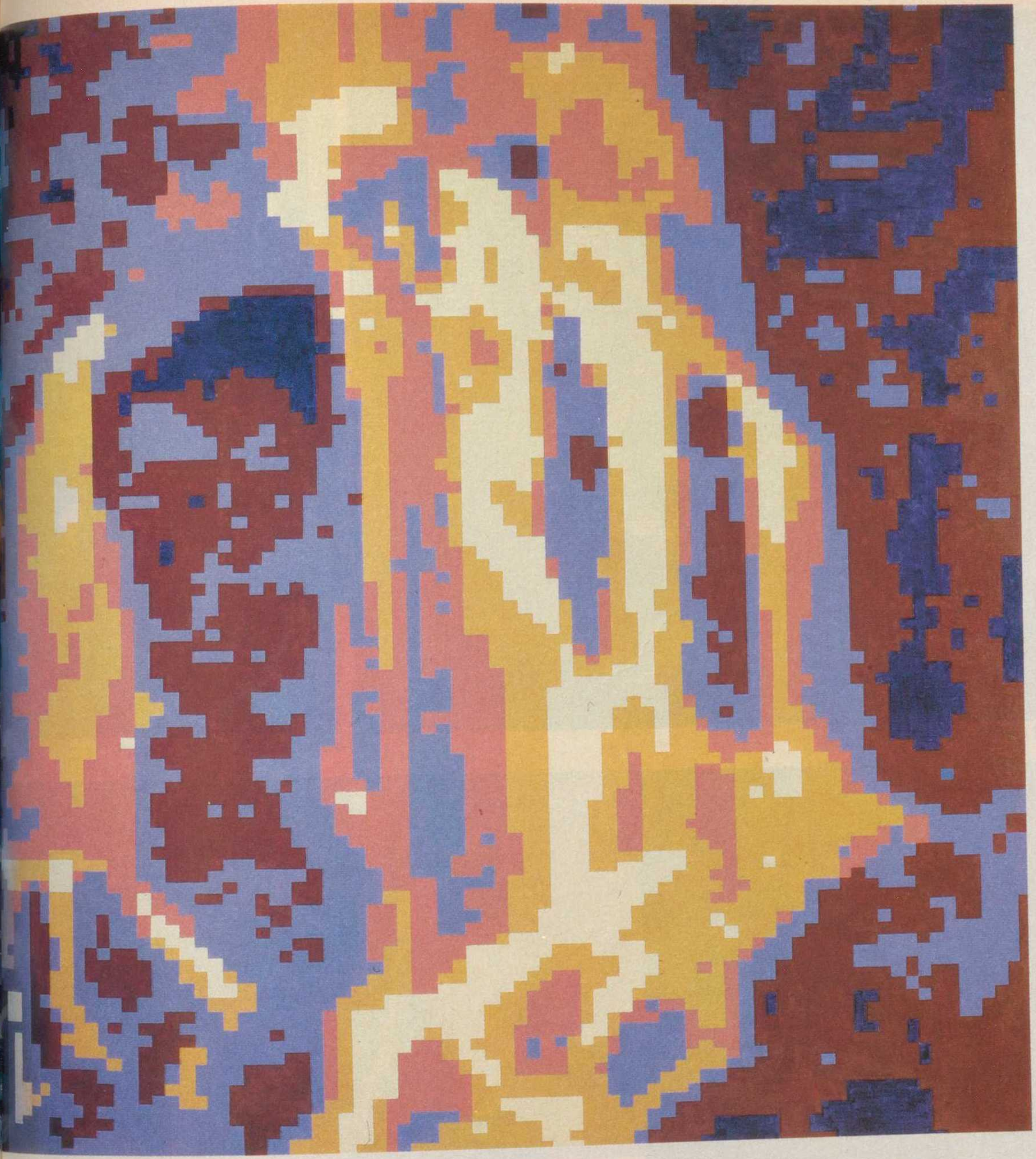
Museum of

The fine arts link up with computers to create a new aesthetic. But is it really art?

By BEN TEMPLIN

From the charred sticks that Neanderthals used to scratch line drawings of mammoths on cave walls to the spray paint New York street artists use to leave their mark on Soho warehouses, artists have searched for new media to express themselves. While the computer's analytic processing seems more adapted to mathematical computation than artistic expression, many artists are finding its speed and memory enhances their work. The art establishment has been slow to accept computer art as a legitimate genre, though old attitudes are rapidly changing as more museums are mounting shows devoted exclusively to computer art. ("Emerging Expressions: The Artist and the Computer," from which many of these pieces are taken, is currently showing at the Bronx Museum of the Arts through September 22.)

Using a computer opens up enormous

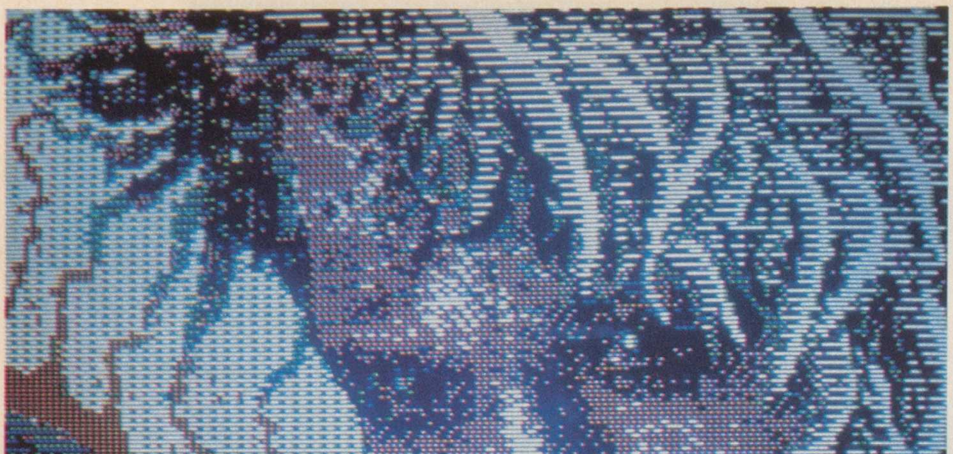


Monitor Art

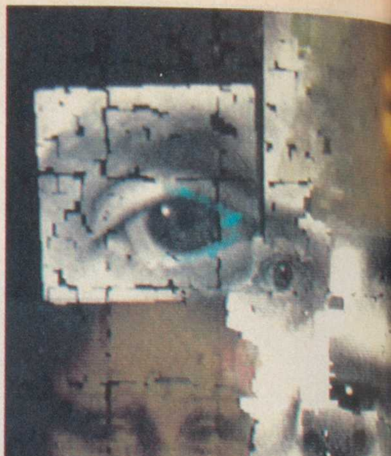
possibilities for the artist. Shapes and forms can be stored and recalled as many times as are necessary. Artists can redo a piece in several different perspectives to work through variations on the same theme. Images can be digitized into the computer's memory using video cameras, then modified with a paint system. The electronic palette is much more versatile than a standard one. Mixing colors becomes very easy when working with phosphorescent light. Different modes can be used to produce the glazing effect of oils, acrylics, and watercolor, or the clean, sharp effect of pen and ink.

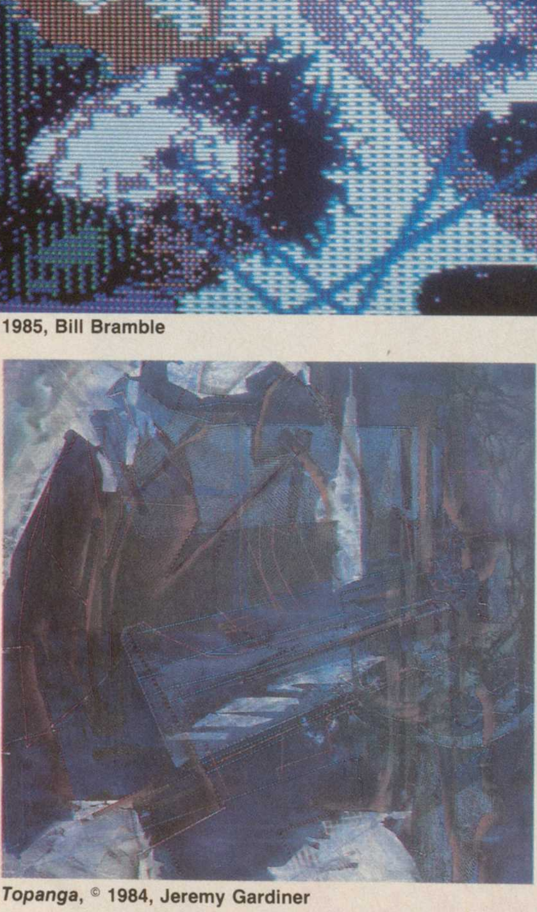
However, when "beautiful design" and "computers" are mentioned in the same breath, people are usually talking about hardware configuration rather than aesthetic output. Many artists are touchy about the term 'computer graphics' or even seeing their work classified as "computer" art. There is always the danger of being ghettoized. Cynthia Goodman, guest curator of the upcoming Fall 1986 "Art in the Computer Age" show at the Everson Museum in Syracuse, NY, sees a parallel between computer art and women artists. "Many women had to hold the banner of 'Women Artists' for years, until they were gradually accepted as just artists. That's where computer art is today."

Mark Wilson, 41, admits that there's some skepticism in the traditional art world about the computer, "but that is a hangover from the early days when scientists were producing pieces that looked like Spirograph drawings," Wilson says. "It was stimulating for me because it opened up techniques that I

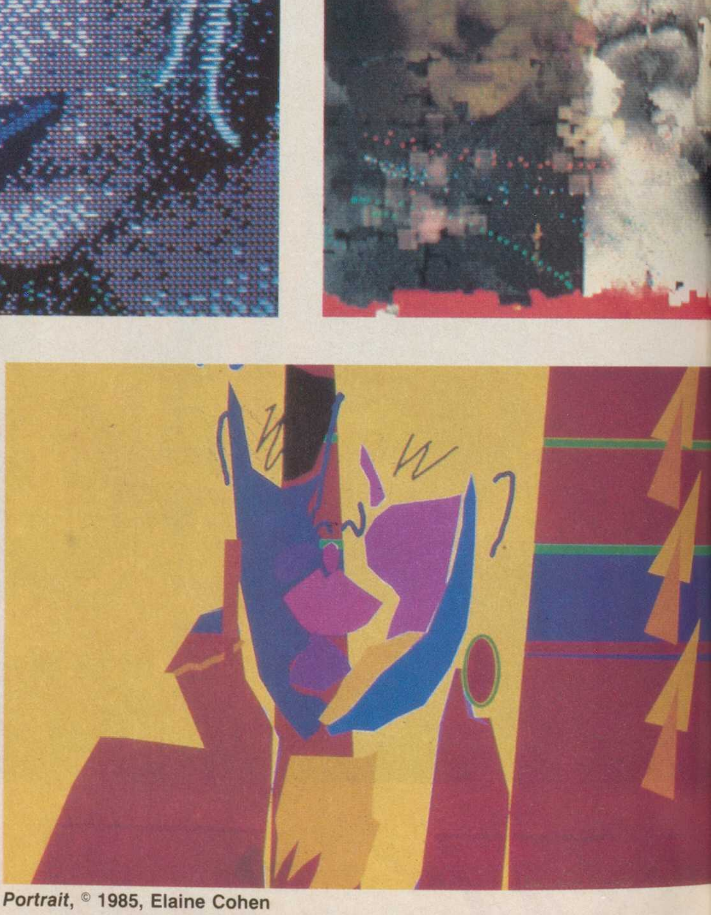


Statica, © 1985, Bill Bramble

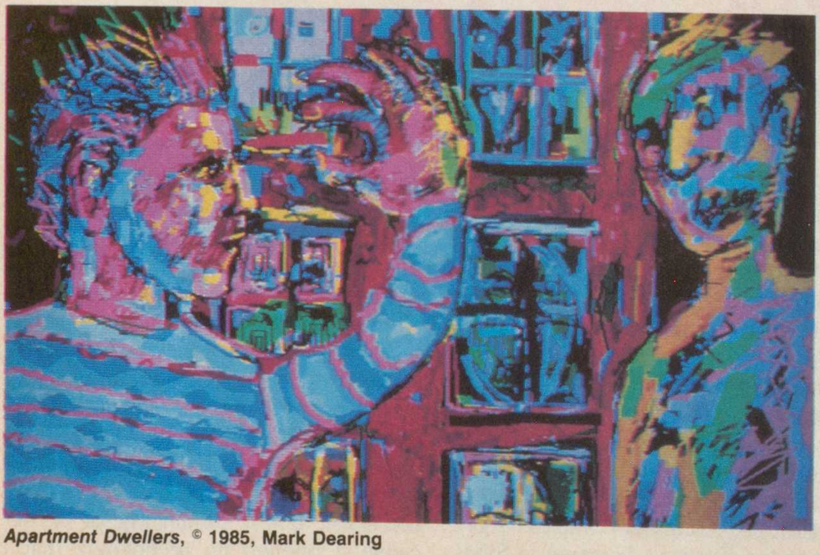




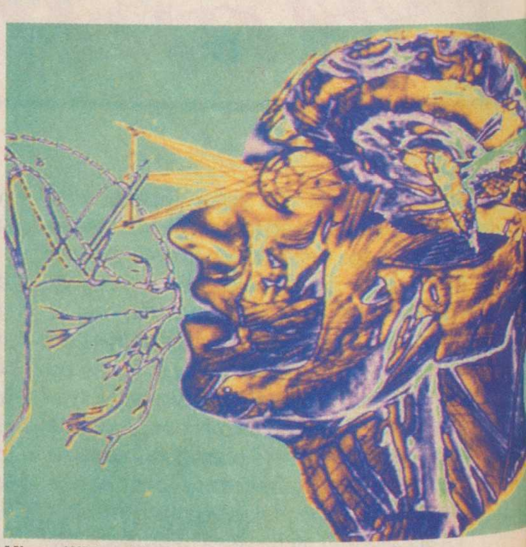
Topanga, © 1984, Jeremy Gardiner



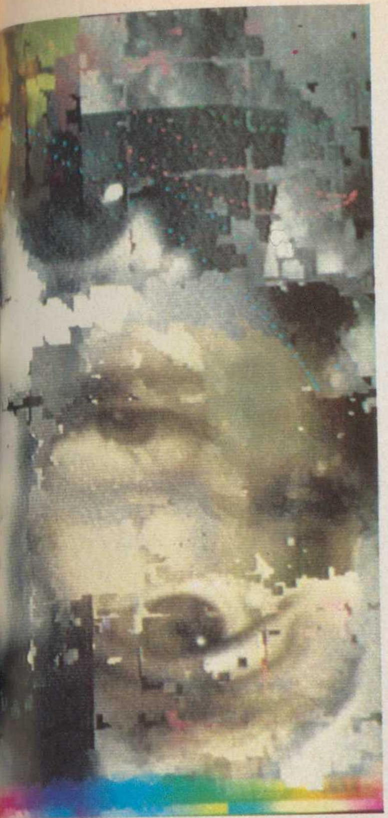
Portrait, © 1985, Elaine Cohen



Apartment Dwellers, © 1985, Mark Dearing



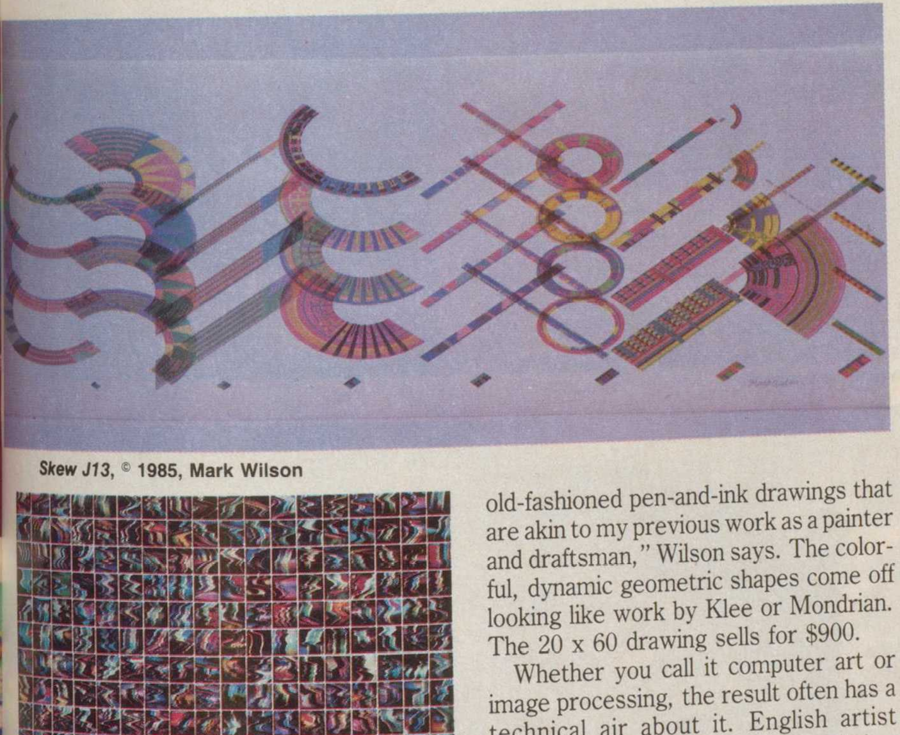
Mirror With a Memory, © 1985, Jeremy Gardiner



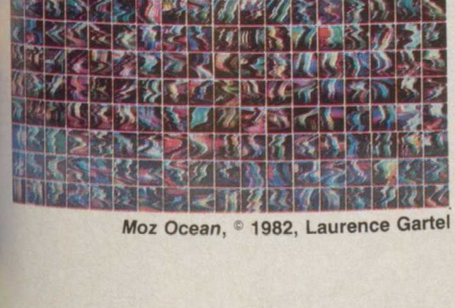
Fazes, © 1983, Alyce Kaprow

Monitor Art

hadn't anticipated. Often times I'll make a mistake—the software screws up and stuff happens that you'd never expect." Using an IBM PCjr with software that he wrote in BASIC, Wilson takes a segment of the image he has in mind and plots it on the screen pixel by pixel. "It's a little like collage making," Wilson says. *Skew J13* (1985) was printed with a Tektronix 4663 plotter—a plotter is essentially a large printer composed of different colored pens or spray jets. "It's like the old-fashioned pen-and-ink drawings that are akin to my previous work as a painter and draftsman," Wilson says. The colorful, dynamic geometric shapes come off looking like work by Klee or Mondrian. The 20 x 60 drawing sells for $900.



Skew J13, © 1985, Mark Wilson

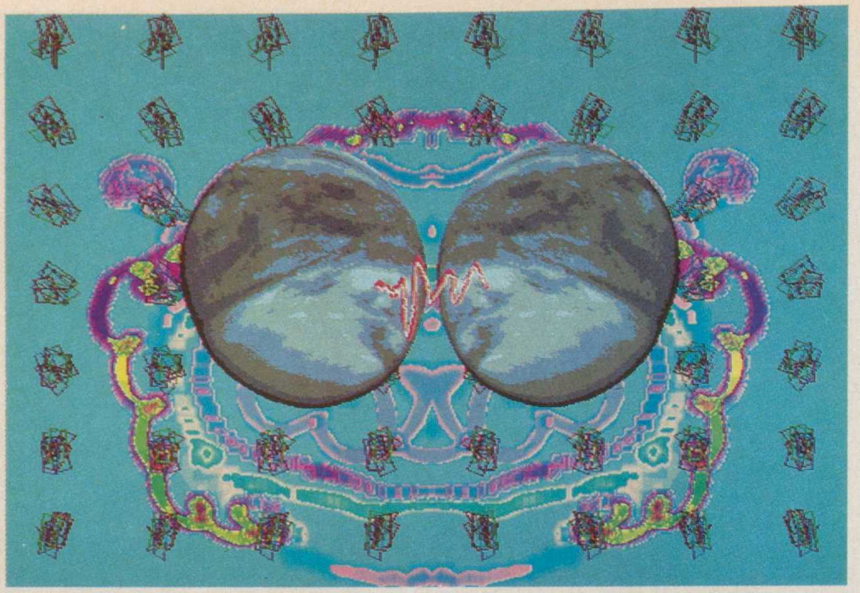


Moz Ocean, © 1982, Laurence Gartel

Whether you call it computer art or image processing, the result often has a technical air about it. English artist Jeremy Gardiner finds the electronic imagery in computer art natural. "If the function of an artist is to be a speedometer on society, then you can't help but register the computer, which results in a Euclidean response on the work. It can't help but come out with a mathematical element." In *Topanga* (1984), a combination of raster graphics and line drawings, Gardiner was trying to "develop a spirit or totem of technology." The piece, commissioned by GE, was composed on a Prime computer, then drawn on canvas using hypodermic needles, acrylics, and graphite. Gardiner looked at old ink drawings from the 1940s and modern drafts of GE products, including vacuum cleaners and submarine sights. He digitized the drawings to get them into the computer's memory, then used PICASO (Picture Algorithmn Subroutine Oriented) software to create the image. Gardiner's seven-minute computer animated video, called *Mirror With a Memory,* explores the evolution of the human skull from a fish to a man. At one point in the video, the head (a self-portrait) has a conversation with the hand. The idea generated takes the shape of a hummingbird in flight. *Mirror* was created on a mainframe computer, the Perkin-Elmer 3230, at MIT.

One artist who absolutely revels in using the computer is Laurence Gartel. "We have no idea of the potential, but this is classical art. A technical renaissance is going on. We're home now. This is our way out." Gartel, 29, says. He used a Chromenco Z-2 video synthesizer to create *Moz Ocean* (1982). The individual wave forms were modified for placement, colorization, and form. Gartel then took over 900 Polaroid snapshots of the screen and used 324 to create the mural. "The point is to show the evolution and continuity of the waves. It's not related to painting or anything previous except maybe something 75 million years ago." Gartel does, however, qualify his enthusiasm. "There's the striving for technology, but the elegance is the incorporation of the total picture."

Alyce Kaprow, who admits she "was seduced by the computer," generated *Fazes* (1983) on a Perkin-Elmer 3220, a mainframe at MIT. The 37-year-old Kaprow, who was primarily a photographer, digitized a photograph of Leonardo Da Vinci's *Mona Lisa,* then merged and manipulated the image into a Cubist rendition—overlaying the different segments of the face and juxtaposing the features. She used computer paint software to achieve the coloration—playing around with color changes until she got the desired look. Kaprow says, "I wouldn't have thought of many of the



Venus Talking, © 1983, Tom Leeser

Monitor Art

effects this piece has if it weren't for using the computer. Because of the multiple imaging and cut-and-paste options, collage is no longer just putting things on top of one another."

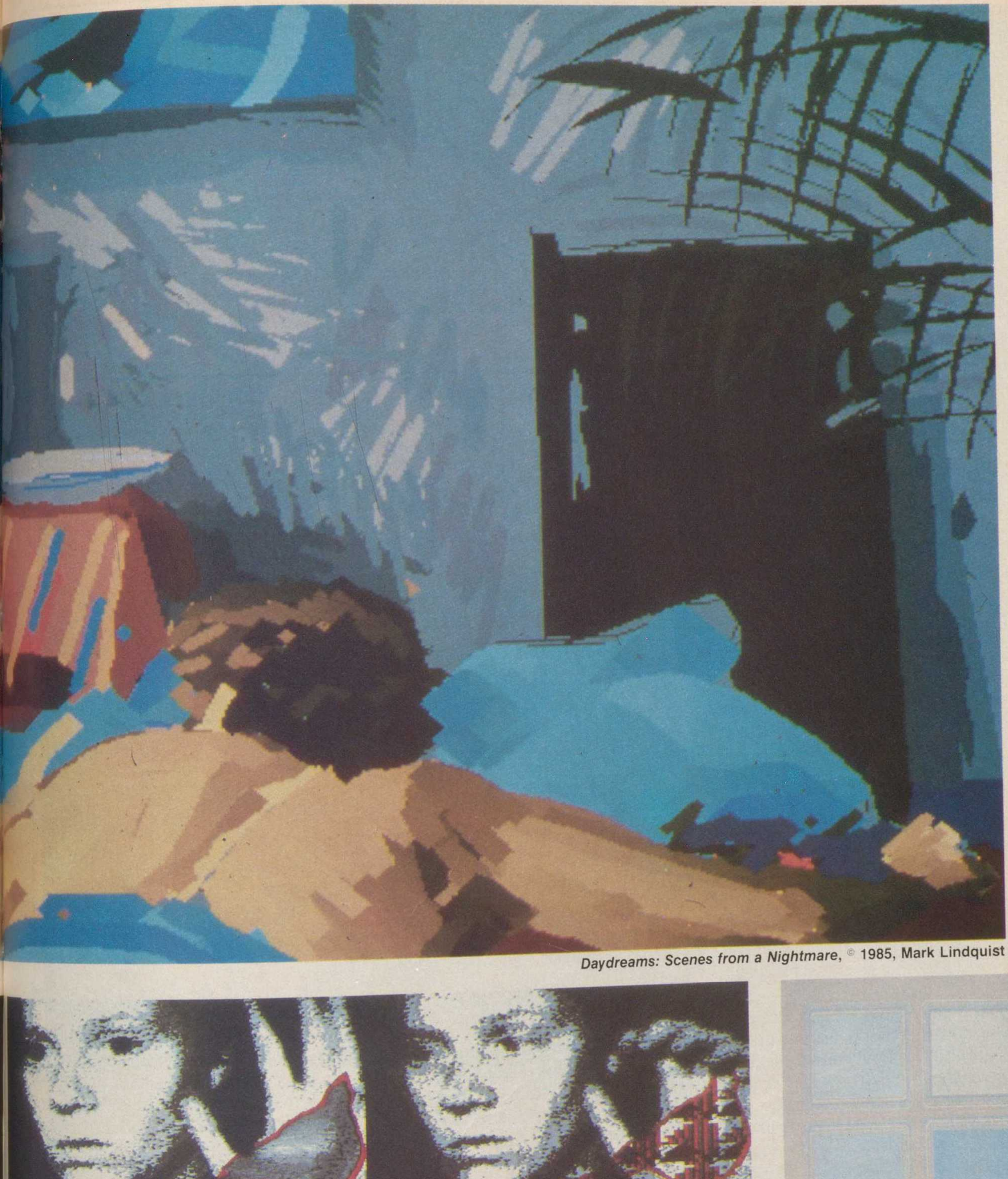
Lynne Oddo, 29, found an aesthetic in the computer's representation without changing it through a paint system. Using the mainframe Images 1 system, she explored the pixel. (The picture element or pixel is the smallest part that computers graphically represent). After enlarging it several thousand times, she discovered "border lines on the outside that make the pixel look beautiful." She did a five-color separation on the computer, then took photographs and made a screen print from the separations. *The Blue Four* (1984) is in the pure minimalist tradition, yet it is also contemporary because of the technology behind it. Oddo says, "Computer art should have an intimacy with the system that it's done on. I wouldn't try to produce a piece in watercolor that should be done with acrylics." Oddo says she plans a limited edition of 16 prints of *The Blue Four* priced at $250 each. Why 16? "I was working on a 16-bit machine," Oddo says offhandedly.

While most of the early computer art was generated by scientists and engineers who were weekend artists, it is rare to find the reverse true. One exception is Copper Giloth, 32, who is well-versed in programming and writes much of her own software. Giloth, a Chicago-based artist, doesn't consider much of the art done with electronic paint programs to be legitimate computer art. The medium of computer art, she says, "should change the way of thinking about our technical society. Not much interesting happens with paint systems." Giloth's earthy but obviously technical *A Bird in Hand* (1983) is a digitized image from a video of herself waving her hand. Giloth uses a Datamax UZ 1, a custom graphics microcomputer that runs on the Z-80 graphics chip—a common micro processor that is found in many video game machines—to modify her images. The 22 x 23 ink drawing was produced on a Hewlett-Packard plotter.

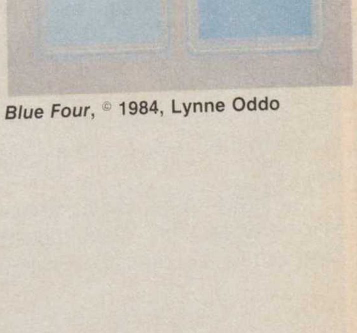
Some artists find, however, that they sacrifice organic control over their work when they trade in their paint brush for a keyboard. Mark Lindquist, whose *Day-*

Continued on page 77

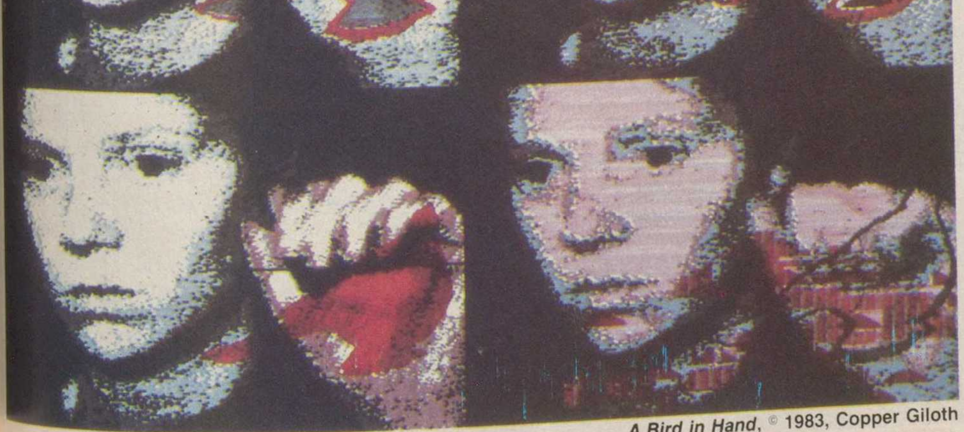
Cranberry Blue Slucid, © 1984, J. Michael O'Rourke, New York Institute of Technology



Daydreams: Scenes from a Nightmare, © 1985, Mark Lindquist



Blue Four, © 1984, Lynne Oddo



A Bird in Hand, © 1983, Copper Giloth

BARGAIN BASEMENT SOFTWARE

When it comes to public domain programs, you can't beat the price. But do you get what you pay for?

By PEGGY WATT

The adage that "you get what you pay for" runs into a classic contradiction in the world of public domain software.

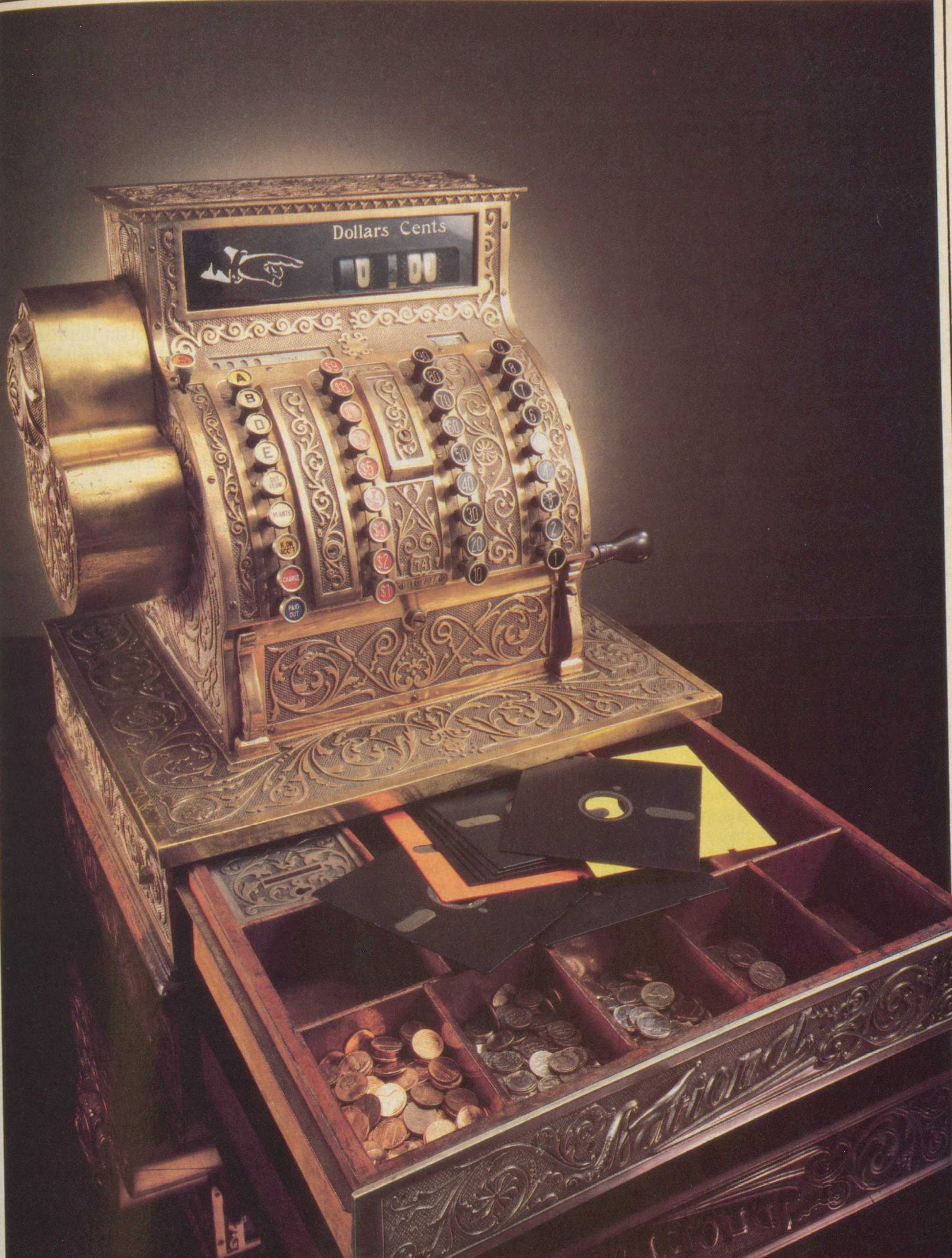
Public domain software is literally just that—it's out there for public ownership, free of charge, without copy protection. The anonymous authors actually encourage you to pass it along to your friends. Public domain software means handy little utility programs and nifty graphics programs, usually a labor of love by a home-grown hacker and a little bit of ego that says, "show the world what I did!" And while nobody's taken a census, there are certainly thousands—perhaps tens of thousands—of public domain programs waiting to be found and appreciated.

But most of all, public domain software is an amazing, ubiquitous library of free games for almost every computer you could name. Even the grandaddy mainframes of the "old" days played a part in the public domain. The original *Adventure* game was group-designed by hobbyists at the Massachusetts Institute of Technology. Another of the pioneers, the computer shrink *Eliza* with her nonstop queries taken from just the barest of information supplied by the human player, was written by artificial intelligence expert Joseph Weizenbaum and survives today in the public domain.

And public domain software is everywhere. With its hefty selection of entertainment programs, it's there for the asking—though a surprising number of computer users don't know even to ask, much less whom to ask. A fine selection can be found in user groups' software libraries, computer bulletin boards, and an increasing number of books on the subject. A few public domain software distribution services are even cropping up.

And what a selection. You can find commercial versions of arcade games in the computer store, but a little hunting will also often reveal worthy imitations in the public domain. *Pac-Man* imitations, expectedly, abound. Some are better than others; *Packman*, by G.E. Leikam, is one of the better. The graphics are true to the arcade (though the maze is horizontal instead of vertical, per computer monitor) and while the action is slow, so is the response time...it all evens out.

Among the other arcade favorites with noteworthy public domain companions are *Bugs!*, which bears a striking resemblance to *Centipede; Pango,* not unlike *Pengo; David's Kong,* with the younger ape sibling from another *Kong;* and *Pyramid,* like *Q**bert* without the sound.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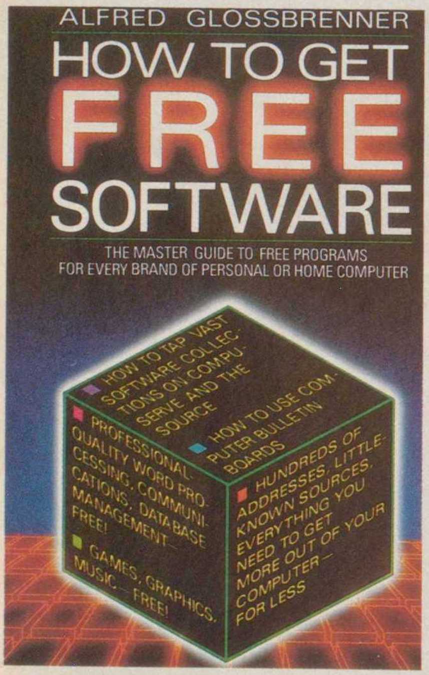
BARGAIN BASEMENT SOFTWARE

There's also *Breakout,* a sophisticated *Pong; Spacevad,* a modified version of *Space Invaders;* and *Wizard,* one of many *Dungeons-and-Dragons* type of role-playing computer games. There are even a few versions of *Lunar Lander,* one of the oldest computer games, in which players try to use the right combination of thrust and fuel to make a soft landing—only now it is accompanied by graphics instead of simply print-outs. And any public domain directory will abound with Star Trek games of some fashion or form.

For *Defender* fans, there's a takeoff with a twist: in *Attack,* your mission is to destroy the Apple Computer manufacturing plant with bombs and lasers, and protect yourself from "Apple-owned fighters." The landscape is a silhouette in Apple red. The program runs only on the IBM PC and compatibles, natch.

Among the public domain software selection are also adaptations of games you see outside the computer terminal: checkers, chess, gomoku, keno, blackjack and poker, for a start. There's a public domain version of *PC Golf,* in which you can declare your own handicap; horse racing; football; *Monopoly* and even a high-tech version of Hunt the Wumpus.

A note of caution, however: nothing's *entirely* free. The guy who declared "a computer is a hole in your desk you keep throwing money into" probably has an equally sassy observation of "free" public domain software. Sure, it's free—but, you know, you do need disks or cartridges to put the programs on. And you need a modem to call the bulletin board systems where public domain jewels are often found. Sure, it's free, but you must have a graphics adapter if you're going to run anything but text games or graphics that are built out of text characters. And you really need a color monitor to appreciate the homegrown color graphics. Sure, it's free, but you should really have a joystick, especially for those arcade-style games that imitate old favorites. It just isn't the same pushing *Pac-Man* around the maze with arrow keys instead, ya know? So some more money goes into the hole in your desk to support the free software.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Your selection is limited by your resources at hand, too. If you lack a disk drive, you won't have access to the stacks of disk-based programs out there. But since we're talking public domain, you can have a friend dump the data from disk to tape or cartridge with a clear conscience.

Another aside: in the IBM world, take note whether the public domain program is on a single-sided or double-sided disk. The original IBM PC sported single-sided disks, but today's PC and most compatibles operate with double-sided drives…which can read the single-sided format, but this doesn't work in reverse. Most public domain software is available in single-sided disks, but it pays (in time and aggravation) to keep an eye on your freebies' features.

Small hazards aside, public domain software is the perfect "purchase" for the new computer user who spent most of the budget on hardware. The price is right and the selection is good. Of course, quantity doesn't automatically mean quality. You've got to kiss a few frogs before you find a prince. On the other hand, exploring the mounds of public domain programs out there is an adventure in itself, and there are certainly treasures to be found.

The best place to start is a familiar place for most new computer enthusiasts: your local users' group. Virtually every users' group offers a public domain software library that includes a healthy sprinkling of game programs. Your cost is membership dues and a nominal handling fee or disk cost.

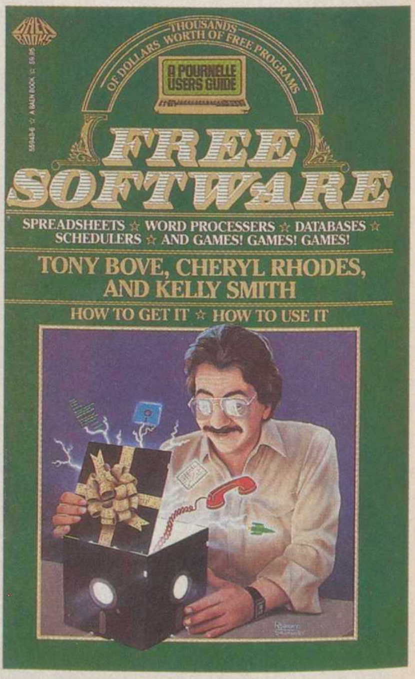
The Silicon Valley Computer Society, a Sunnyvale, CA club for users of IBM PC and compatible computers, has close to 1,000 programs in its public domain library. Club librarian Herb Shear suspects a fair number of members sign up just for access to those disks.

"Public domain software plays a very strong role in our club," Shear said. Members who contribute new programs get free copies of library disks in return. "A lot of people write a program just for their own learning experience or amusement, and simply toss it in the public domain," he said. "It's not necessarily worth it to go the commercial route."

For owners of some brands of computers, users' groups are more than supplements, they are the backbone of software supply. For example, the First Osborne Group in Daly City, CA, has more than 2,000 public domain programs available to members of the huge users' group. Though the Osborne Computer Corp. recently emerged from bankruptcy, users stuck together because for awhile they thought they'd be going it alone.

Also, buying more hardware can mean access to more software. A modem can

Continued on page 78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A Discriminating Look at New Software

KENNEDY APPROACH

Designed by Andy Hollis
MicroProse, 1985/Atari, C-64/Disk

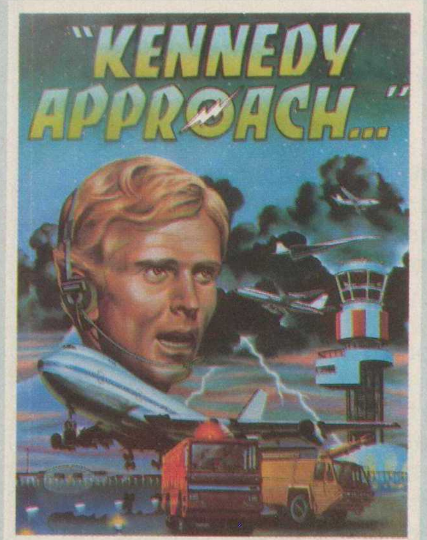
If you think it's rough trying to *fly* an airplane, just try getting two or more into landing patterns and onto a runway in one piece. My recent attempts to do just this with *Kennedy Approach* have left the Atlanta Airport—to mention just one—pitted with crash sites. In fact, I have yet to get *one* plane down in anything like an orthodox manner, and I can't even remember the number of times I've been fired from my job as an air traffic controller. Must be another strike on, though; I seem to have no trouble getting re-employed. And I like the work.

MicroProse, a company known for its line of flight simulations, seems to have run out of interesting planes to put on disk and have taken to the ground with a simulation so realistic it even talks back to you, courtesy of an excellent on-disk speech program by Electronic Speech Systems of Berkeley, CA.

This is one of those programs where you not only have to read every page of the manual—for one thing, your access codes are scattered through it—but you practically have to commit it to memory. The effort is worthwhile, but by the time you finish reading, you'll not only know how the program works, you'll feel fully qualified to apply for the next opening at your local control tower. The instruction book is titled "Standard Operating Procedures for Air Traffic Control."

Kennedy Approach gives you a choice of five cities with airports: Atlanta, Denver, Dallas/Fort Worth, Washington, DC, and New York. Some of these, you may have noted, have more than one airport to keep an eye on. Avoid them until you can get at least one safe landing at Atlanta, which has only one field and flat terrain. That's as easy as it gets.

Once you've chosen an airport—and found your access code—you get an on-screen area map showing flight paths, landing strips, radar and VOR towers. And, of course, all those planes you're supposed to be keeping an eye on. If you feel it's asking too much to bring two or more planes down safely at once, you can send the extras into holding patterns around the VOR towers for a while.


"KENNEDY APPROACH..."

With a joystick, you move a cursor over the on-screen plane. Moving the stick from side to side turns the cursor into a directional arrow; when you find a direction you like push the fire button. (If the plane moves in some other direction altogether, read the directions again.) You can direct the plane to change altitude by pushing the stick toward or away from you. Pushing the firebutton sends your directions to the pilot, and a voice repeats them: "Delta one-oh-niner: turn right one-eight-oh and descend to 3,000 feet." That's you. You can always tell the pilot; he's the one whose replies come through a realistic burst of static.

If the friendly skies get too crowded and you forget what commands you've given which plane, you can ask a pilot to remind you. If things *really* get nuts, you can pause the program while you consider your next move. The designers have certainly tried to give you a break when they can, without losing realism.

Just about the only reservation I have about *Kennedy Approach* is its difficulty. Even at the lowest skill level, it takes a lot of time and practice. Keyboard control would have been easier to master, I think, and would have avoided the spurious arcade air of the joystick. This is a test of precision and wits rather than speed, after all.

Kennedy Approach is an well-designed simulation that seems to mirror its real-life counterpart right down to the difficulty and job satisfaction. Those of you who don't see anything exciting about staying in the tower just haven't been there yet.

(Louise Kohl)

RESCUE ON FRACTALUS!

Epyx, 1985/Atari, C-64/Disk

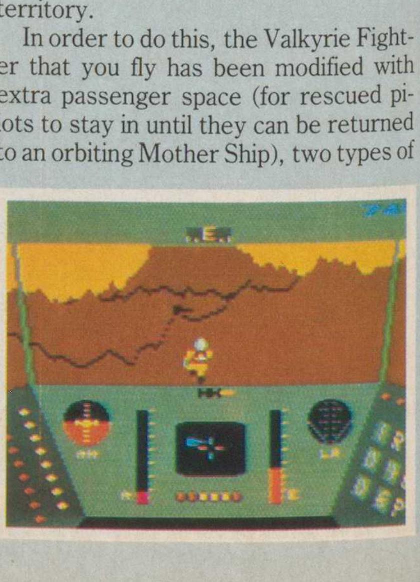
Anyone who follows the ever-changing field of computer graphics should be familiar with the relatively new science of fractal geometry. Common or garden-variety geometry is fine for some things: triangles are nice, and cones are even better, but neither comes close to approximating such irregular shapes as a stone pyramid or Mt. Fuji. That's where fractals come in.

Through an incredibly complex series of mathematical equations best handled by a computer, fractal geometry allows construction of accurate, real-world shapes. With fractals, a computer can create uncannily realistic landscapes complete with mountains, valleys, gulleys and crevices. And this is exactly what it does in *Rescue on Fractalus!*

Each time you play *Rescue* the computer creates a new world. The ultimate in simulations, these worlds are entire, complete, three-dimensional environments, consistent to the very last detail. Because of this the gameplay, which involves flying a futuristic fighter through, between and around the various parts of the landscape, is spectacular.

The storyline in *Rescue on Fractalus!* is interesting; according to reports from headquarters, a number of Alliance pilots have been shot down over the planet known as Fractalus by the fierce and evil Jaggies. As an expert pilot, it's your duty to go to Fractalus in your Valkyrie Fighter Plane and try to rescue the pilots who have been downed in hostile territory.

In order to do this, the Valkyrie Fighter that you fly has been modified with extra passenger space (for rescued pilots to stay in until they can be returned to an orbiting Mother Ship), two types of



weaponry (to defend the fighter against Jaggie attacks) and a variety of sensors and indicators which include a tracking system to help in locating endangered pilots.

The gameplay in *Rescue on Fractalus!* is exciting and suspenseful. You're really able to interact with the environment, especially during night missions, and this adds a certain depth to the game. Needless to say, the graphics are marvelous—not only are the "fractalized" mountain ranges superbly detailed, but the ship's control panel is graphically and functionally excellent, and the animation that accompanies successfully finding a pilot has to be seen to be believed.

Rescue on Fractalus! was released two years ago for the 5200, and the Epyx version makes few changes or improvements on the original, except in the area of the instruction manual which is markedly more comprehensible and entertaining.

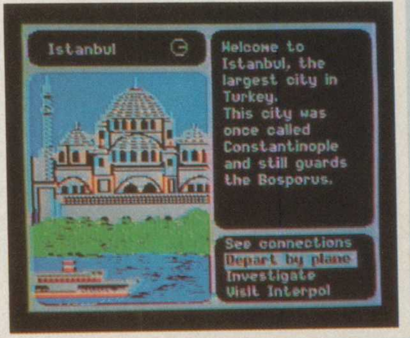
For those of you who haven't seen the original version, don't be put off by the fact that the basic game design is two years old. Perhaps the best compliment one can give to *Rescue on Fractalus!* is that in two years it hasn't aged a bit. It is *still* state-of-the-art, *still* incomparably better than the vast majority of similar programs, and *still* one of the only recent pieces of software that simply must be experienced, not just played. *Rescue on Fractalus!* is peerless; for Atari and Commodore owners, it is one of the must-buys of the year.

(Charles Ardai)

WHERE IN THE WORLD IS CARMEN SANDIEGO?

Designed by Dane Bigham, Gene Portwood and Lauren Elliott
Broderbund, 1985/Apple II series/ Disk/$39.95

Not only does this new offering from Broderbund have arguably the longest software title of the year, but it is also one of the most entertaining educational packages to come along in a long time. And one of the best things about it is that even smug adults, who've already passed social studies and geography, can learn something. I, for one, have still not gotten over finding out that the national currency of Turkey is lira. Had Broderbund not so thoughtfully included a copy of the *1985 World Almanac* in the package, I'd probably still be fruitlessly nosing around Italy.



Welcome to Istanbul, the largest city in Turkey. This city was once called Constantinople and still guards the Bosporus.

The graphics in *Carmen Sandiego* are a treat, too. For starters, the whole title page sequence is animated; in fact, side one of the disk appears to be devoted to it. There's a nice sense of humor permeating the whole program. I'm quite fond of the V.I.L.E. henchman, a crook in a striped shirt and "raccoon" mask, who either sidles nonchalantly across part of the screen, or peeks up from the bottom and grins at you ingratiatingly.

The scenario is this: You've been recruited by Interpol to help track down and arrest various members of the infamous Carmen Sandiego gang, a crew with sticky fingers and catholic tastes. They'll steal anything—one of them even makes off with the Staten Island Ferry. By teletype, Interpol tells you a few bare facts: the sex of the offender, the location of the crime, and what was stolen. You have from 9 am Monday to 5 pm the following Sunday to run the miscreant to the ground. The time limit includes enforced sleep periods—and you never seem to sleep on the plane.

The gameplay itself is simple. It is menu-driven from the keyboard, and you have several choices of action: you can investigate three locations in a city check possible plane connections, leave by plane or visit Interpol—which you must do in order to get a warrant. Finding the crook without a warrant in your possession only gives him an opportunity to thumb his nose at you—metaphorically speaking. Not to worry: Interpol has boundless faith in you, and will keep on giving you cases to solve. (You get a warrant once you have a certain number of clues to the thief's identity, such as hair color, distinguishing marks—tattoos are good—mode of transportation and so on.)

ERRATUM

The Editors would like to apologize to Sierra On-Line, makers of Stunt Flyer, *for the review in the June issue. An incomplete development disk was inadvertently passed on to the reviewer as the final program. Sierra asserts that the problems Mr. Ardai found in* Stunt Flyer *will be solved by the time the program is released. As of now Sierra does not plan to include the Competition mode as part of the final version.*

If you have landed in the right city, people at the three locations will tell you a little about your quarry—including hints as to where he's headed now. Sometimes these are straightforward. If the librarian in Athens tells you that the person you're looking for mentioned he always wanted to see Big Ben, and the bank clerk tells you he changed his money to pounds sterling, you're probably safe taking the next flight out to London. (One interesting characteristic of this gang, by the way, is that they always exchange money at banks—you'd have thought they'd use the black market. I guess Mom was right, and there's some good in everyone.)

Every so often, the clues are more obscure. Once all I had to go on was that the criminal left in a plane with a red, yellow, and green flag. My list of connections was not immediately of much help; I hadn't heard of any of the places listed, and had no idea what countries they were in. I spent quite a while going over the *Almanac*'s section of national flags, looking for the ones with the right colors and then looking up the countries for a mention of the cities. Finally, flushed with pride, I found that Bamako was in Mali, whose flag had all the requisite colors. I hopped a plane—no one in Bamako knew what in the world I was talking about. It was back to the *Almanac*. You have no idea how many flags are red, yellow, and green.

If the first citizen you approach says something like, "I've never seen the person you're talking about," it's time to reconsider the itinerary. If you're in the right place, citizens are more forthcoming—and the V.I.L.E. henchman pops up from time to time indicating you're on the right trail. If you're really close, knives are thrown at you and the citizenry tends to communicate in thinly-veiled warnings.

When you finally catch up with your crook, you see him—trenchcoated with a hat pulled down over his eyes—run across the right-hand side of the screen, closely followed by Broderbund's edition of the Keystone cops. The cops then march the crook back the other way at gunpoint and put him in jail—assuming you have a warrant. Otherwise, one of the cops tramps back alone, throwing you a baleful glance on the way.

When you arrive in a city, you're given a short paragraph of information about such things as its history, climate, or terrain. These are worth paying attention to for other than the educational value, since the more information you have, the easier it is to decipher clues like, "She said she always wanted to see a volcano."

Where in the World is Carmen Sandiego? is a lot of fun, not the least of which is figuring out how to get a specific bit of information from the *Almanac.* This alone makes you feel like a real-life sleuth—even if you get hung up studying the ages of all your favorite celebrities on the way, as I tend to do. Some of the cases may seem too simplistic for adults, but at least these speed you on the way to your next promotion. Personally, I don't intend to stop until I'm a Chief Detective Inspector, CID, New Scotland Yard.

(Louise Kohl)

BY FIRE & SWORD

Designed by Steve Estvanik
Avalon Hill, 1985/IBM PC, PCjr, XT, AT; C-64/128K Disk/$25.00

Steve Estvanik is a unique game designer. Without being pedantic or oversimplifying, he manages to take entire eras of history and turn them into fascinating, highly playable strategy games. Along with being a lot of fun, his games actually seem to recreate the everyday reality of the ancient worlds he's modeling. His last — *Incunabula* (reviewed *CE*, June) — mirrored a *really* ancient reality: the struggle of early Man to develop a cohesive civilization out of collections of warring tribes, sedentary agriculturalists and nascent communities. The game succeeds, despite its broad focus, by combining elements from political/military contests like *Risk* and *Diplomacy,* and economics-simulation games like *Hammurabi* and *Utopia,* with great color graphics and play mechanics that are a joy to use. *By Fire & Sword,* his latest, is even more successful, because it focuses on one specific, highly dramatic era: the rise of the feudal land-baron as the dominant political and military force in Europe at the end of the 10th Century.

By Fire & Sword
microcomputer games
A DIVISION OF THE AVALON HILL GAME COMPANY

The Europe of that era was fractious and chaotic. The empire that Charlemagne had founded was in an advanced state of collapse; without any firm center of control to arbitrate disputes and enforce unity, dozens of petty local warlords vied with each other for land, money and power. With the funds and food he could raise from the peasants who tilled his fief, a power-hungry *seigneur* could recruit and equip an army of vassals and set about invading his neighbors' lands. If successful, he could repeat the technique with the newly conquered properties, expand his borders and eventually become so powerful that other lords feared to attack him—and thus win *de facto* political control of the entire area.

By Fire & Sword does an incredible job of reproducing in great detail every sort of conflict — economic, military and political — with which such a lord had to deal. The player starts as one of six barons occupying tiny fiefdoms scattered here and there over a huge and very colorful terrain map of mountains, rivers, marshes, plains and forests. As the game begins, most of this area is politically uncommitted. But at a small cost, you can recruit a couple of units of infantry — yeoman farmers — who you then send out to win the surrounding, uncommitted lands to your banner. As they take off across the map, they leave a colored trail of blocks behind them, representing newly conquered territory. And as your holdings expand, so does your income, allowing you to recruit not only more yeomen, but also more heavyweight military might — battalions of archers and armored knights — to defend your growing fiefdom from invasion. You can also build castles and villages to stabilize your domain and increase your income even further.

Warfare is costly, however; the more you expand your forces, the more it costs to maintain them. That puts a premium on constant expansion of the borders of your petty empire, which will sooner or later bring you into conflict with the other lords, who are all pulling the same trick. To keep from having to battle all of them at the same time — and to allow you to concentrate your attacks on the weakest of your neighbors — you can form alliances of convenience with a select few. Your lands are safe from invasion by these allies while the alliance lasts, and there are also income benefits to be garnered by trade with these "friendly" barons. But beware: These Machiavellian alliances form a twisted skein that can be broken at any time, and when they are, it's every baron for himself.

The military simulation is beautifully detailed and highly realistic about the circumstances of Medieval warfare. Yeoman attacking an enemy town or castle, for instance, must build expensive and hard-to-move seige towers; no other forces can enter until the city defenses are breached by these humble foot-soldiers. All movement orders are executed simultaneously, so to intercept an invader you must make an accurate guess about which route he will take. Terrain also affects movement and fighting: forests provide cover for your forces, for instance, and mountains, though difficult to cross, are militarily advantageous to occupy. At the higher difficulty levels, players see only those parts of the map that their forces are able to report; at all levels, it's almost impossible to tell what type of units your forces will be battling until they're right on top of each other. If vanquished in battle, your retreating forces can adopt a "scorched-earth" tactic, setting fire to forests and cities along their route and thus damaging the victorious lord's spoils.

The political/economic simulation is equally good. In order to found towns and villages and increase your income, you must first build an expensive castle to protect them. And war lays waste the countryside, robs your lands of productive capacity and thus inflates the local currency. Eventually only the wealthiest barons can afford to keep fighting with each other.

There's lots more to this excellent game, including a whole raft of player features which make it easier to determine strategies, and a preliminary section that allows you to pit up to five human players against one computer-controlled player (or vice versa), see how the computer might play your situation for any number of turns, save the game at up to 10 different stages. Be forewarned: This game is complex enough to be extremely difficult for beginners, and individual games with lots of human players can take days to finish. But if you're an experienced strategy-gamer looking for a game with beautiful graphics, excellent historical detail, and plenty of conflict, intrigue, and room for developing bright tactical ideas, *By Fire & Sword* is more than worth your time, effort and money.

(William Michael Brown)

PYRAMID OF PERIL

Written by William Volk
Aegis Development Inc./
Macintosh/$49.95

The first thing you notice about this game is that there are no instructions. Now in many programs this would be a plus, but here it is a definite minus. There are pull-down instruction menus at the top of the screen (Help, General, Movement, Game and so forth), and these do provide you with sketchy information that is somewhat relevant to the game (i.e. it's printed in a shaky antique typeface and has Egyptian type drawings in the background) but really, the game could use some paperwork with a little more explanation of how things work. The premise at least needs no explanation. It's every basic lost-in-a-pyramid game ever made. There are treasures to pick up, scorpions and other deadly enemies to vanquish, doors to go through, and stairs to climb. It doesn't even have the humor inherent in other pyramid games. In other words, you can't fall down the steps to amuse yourself in your solitude. The game is boring.

> The perspective within the pyramid is very well done, but perspective is not what you enter an ancient pyramid for. In a pyramid you want adventure.

Because this is a graphic adventure, you are represented on screen by a short round little guy who resembles the Pillsbury Doughboy gone digital. You move by placing the cursor over the square which has the direction you want (forward, backward, down, up). The perspective within the pyramid, as depicted graphically on the left half of the screen, is very well done but perspective is not what you enter an ancient pyramid for. You can get that in a drawing class at your local community college. In a pyramid you want adventure.

As you stumble around, a little map draws itself on the right half of the screen so you can tell where you've been and where to go—if you care. Your strength is shown at the bottom right. It drops for no known reason. There is also this nebulous gray thing that looks like a weak tree stump that follows you around through the pyramid and always remains just off to your left. If you try to approach it, it moves. After a while, you realize it is the sack into which you must put the treasures you find along the way. There is no reference to this sack anywhere in the inadequate text. You must divine its purpose.

Nor is there any reference to the method you have to use to pick things up along the way. You notice right away that the cursor—which is originally a small stick and then becomes a dagger when you find the knife—transforms itself into a disembodied hand when placed over a treasure. This sheds no light on how to pick anything up. After a few failed attempts to simply drag them over to the sack, you realize that you must hold the mouse button down in order to move the jewels or whatever. All objects have the same murky quality about them so you're never really sure what you've just dropped in your bag. Perhaps this is for the best.

Some of the items seem to replenish your strength though you can't be sure why something that resembles a baton makes you feel healthier. There are also jewels and lamps and things to pick up. And there are messages to read. These messages, you're told, should be read and memorized as they never are seen again (heavy organ music up and out). Most of them tell you cheerful news about your expedition mates' deaths and disappearances or how you're the only one left. Along the way you also meet scorpions, spiders, devils that are dancing fools, and other enemies. You can kill them with your little dagger. If you find the sword, you can kill them faster. There is very little challenge or exercise in the fight. It's more fun trying to figure out how to pick up the treasures.

The game seems juvenile and silly, but watching the little map make itself is fairly entertaining and finding the objects is always fun. Still, once the novelty of that wears off (roughly five minutes after you work out the treasure collection problem) you find yourself wondering why you chose to go to this remote spot on a trip instead of some place closer to home—like your kitchen.

(Randi Hacker)

Load & Run

A Discriminating Look at New Software

FORECAST!

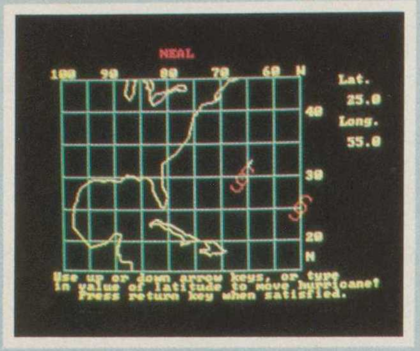
Designed by Irv Gikofsky,
Tore Jakobsen, Neal Townsend
and Jim Witt
CBS Software, 1984/C-64/
Disk/$49.95

When I was growing up it was easy to play "weather man." You simply drew a rough map of the U.S. on a large blackboard and added clouds where it was going to rain and smiling sun faces over those areas you decided would be clear. After all, that was pretty much the way the meteorologists on TV did it. Today, however, thanks to computer-generated text and graphics the nightly forecast looks more like an animated cartoon or magic show than a weather report. How can today's children hope to compete with satellite photos of hurricanes, shifting air masses that really shift, falling rain or snow, and flashing lightning?

One way to bridge the technology gap is with *Forecast!*, a new program from CBS Software that gives aspiring meteorologists (ages 12 and older) five activity tools designed to demystify the science of weather prediction. Developed by nationally recognized meteorologists, *Forecast!* helps young users develop an understanding of how atmospheric conditions such as temperature, barometric pressure, and wind speed interact to produce the weather.

The five activity tools available from the main menu include The Weather Forecaster, The Weather Calculator, The Weather Keeper, The Weather Traveller, and The Weather Tracker. Each activity features easy-to-follow prompts and instructions, and can be used without first consulting the program guide. The Weather Forecaster, for example, simply asks you to input the day's weather data, either by responding to multiple-choice questions, or by using the cursor keys to graphically adjust the readings of on-screen instruments. When you've finished entering the data for today's weather, the program delivers a detailed forecast for tomorrow's weather, based on the season, the area of the country you live in, and ten years of national weather statistics compiled by experts in the atmospheric sciences.

The Weather Calculator lets you easily convert Fahrenheit temperature readings to Celsius, wind speed readings from knots to miles per hour, and air pressure from inches of mercury to millibars. You can also perform each of these operations in reverse. Other Calculator functions let you determine wind-chill temperatures and relative humidity.



Lat.
25.0
Long.
55.0

Use up or down arrow keys, or type
in value of latitude to move hurricane!
Press return key when satisfied.

A daily log of your area's weather conditions can be stored on your own data disk or printed using The Weather Keeper, and The Weather Traveller provides statistics on temperature and precipitation in most major cities in the U.S. for every month of the year. Two different cities can even be compared by displaying the weather charts for both cities simultaneously. The final activity tool, The Weather Tracker, lets you follow the patterns of hurricanes to determine where they'll strike next.

While many twelve year olds (and adults for that matter) would rather search the skies for enemy planes or space ships than approaching cold fronts, a carefully-written software package like *Forecast!* could possibly spark a lifelong interest in the sciences and, in some cases, become a foundation for further education or even an entire career. At the very least, however, *Forecast!* is an unique educational alternative to shoot-'em-ups on a rainy day.

(Bob Guerra)

ARMAGEDDON

Social Software, 1984/
IBM PC, PCjr, AT and compatibles'
128K Disk/$34.95

On the surface, *Armageddon* ain't much. Mostly, it comes across as a nicely done, computerized version of *Risk* for two to six human players (no computer competitor is available), with some great graphics (developed with the aid of Media Cybernetics' HALO graphics system) and cute sound effects added. Ah, but this is not your ordinary *Risk* clone. Here, each one of you *Risk*ers, moving your oblong little armies around a schematic world map in pursuit of total global domination, is also *nuclear-capable* — and on this twist, just as in real life, depend a number of interesting complications.

The *Risk* clonery is the most obvious part of the game — so obvious that it makes me wonder how long the owners of the rights to *Risk* will take before they start giving the folks at Social Software a hard time. You start out with a nice map of 42 "countries" that are versions of the political entities we all know and despise — you know: the Soviet Union, America, Peru, etc. The opening screen then lets you and up to five of your erstwhile pals pick out which of these 42 you're going to start out owning. Since there's an earned-armies bonus — as in *Risk* — for dominating certain continents, most of the players will strive to own one or more continents completely, frustrated by other players trying to block them. You get five armies in each country to start with, and as actual play begins, another 5 to 15 to place as you like. Once the pieces are all set up, you can start attacking your numerically inferior neighbors, trying to take over more countries and earn more than a minimum number of armies for the next round. Once the attacks are finished, you get to move guys in the back up to the front, to support and consolidate the gains you've made — and so on, until one of you takes over the whole shebang and gets elected Hitler of the Month. All this is conducted via a few keystrokes, and is quite charming to watch and even to play — although derivative it definitely is.

"But hold on there, Buckwheat — what about the nukes?" you say. Well, at each army-distribution phase of the game, you can convert any of your armies into points toward a nuclear capability — including none of them, if you're a freezer like me. It takes quite a few points to get a warhead; you can determine how many at the start of the game, but it's always a fairly big number that can't be ponied up until you're well along in play. Once you've garnered the necessary, the screen during your attack phase reads "Armed," and, if you need to at that point, you can call a nuclear strike before distributing your armies. Calling a nuke strike gets you a nice display — the screen blinks red and there's a warning klaxxon-effect — and once you've distributed your armies, a cursor begins running all over the screen, accompanied by computer "beep-boop" chatter. You select ground zero, and a cute-'n'-colorful little holocaust weapon materializes over the unsuspecting target, blows up, and wipes out everybody in the immediate area of the target country.

The effect on the normal course of *Risk* play — not to mention the mass psychology of the assembled *Risk* devotees — is profound. The nuked area turns a dead blue (the base color of the map before it became piebald with the various national colors of the players), and can never be entered again by anybody, including the trigger-happy player. Given that "No Pasaran" post-nuke rule, whole areas can be cut off from the rest of civilization, with interesting effects on the course of play. Constantly getting your North America invaded via Charlie Steven's Kamchatka? Call in a protective strike on Kamchatka and he — *nobody* — will ever bother you from there again. Of course, if you'd later like to invade central Asia via that route, you're outa luck — unless you'd like to be reading political thrillers at night by your own green glow. More importantly, though, there's another rule: If a third or more of the world is nuked, Holocaust is declared and *nobody* wins — making more than one or two strikes a real desperation move, and giving especially hard-pressed players a sort of veto over the whole course of a game.

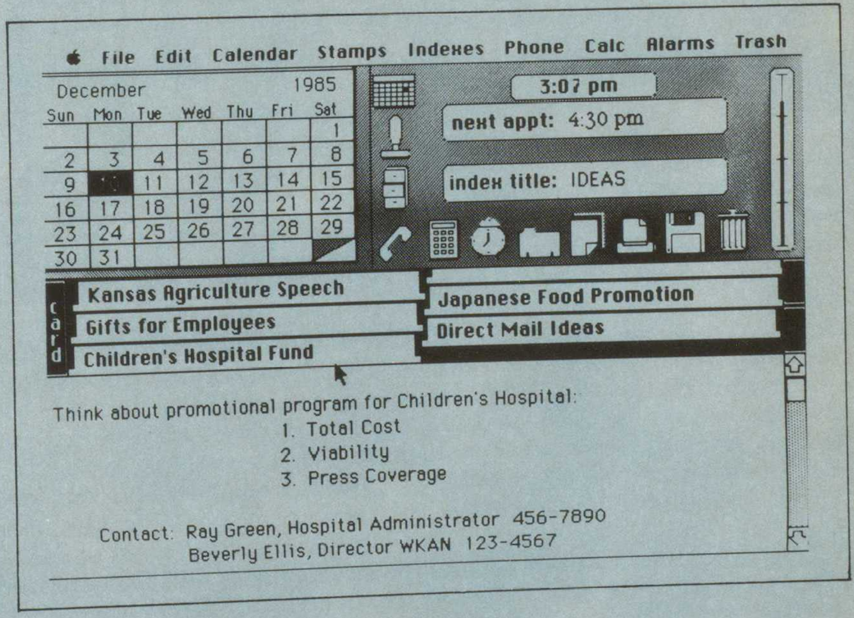
Whether that's the way you'd like to play *Risk*, I can't say. I've always been an OK player myself, and I hate handing a veto power to every bozo who can't defend himself on the board. It *is* fascinating, however, to watch what happens when you sit down with a bunch — say, four — of your politically liberal friends, boot this game, and then see them start whipping those missiles out of their back pockets the instant the tide starts to run against them. The game is nicely done, fairly easy to learn in one or two tries (despite a woefully disorganized rulebook), moves quickly, and is pretty on the screen. I'd suggest you give it a try; there's nothing like watching old college anti-Vietnam-war-demonstrator pals turn into raving "Nuke the Baby Seals" warmongers the instant they get a bad dice-roll in conventional combat. Who knows? It could even make your day—or someone else's.

(William Michael Brown)

THE DESK ORGANIZER

Designed by Conceptual Instruments Company
Warner Software, 1985/
Macintosh/Disk/$99.00

The Desk Organizer is the Swiss Army knife of utility programs. It packs nearly a dozen useful tools for managing a busy schedule into a single, well-integrated program. But, like the famous knife, all the tools make *The Desk Organizer* a bulky bundle. Not everyone will want to pay the price in disk space that it demands.



December 1985

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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2	3	4	5	6	7	8
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3:07 pm

next appt: 4:30 pm

index title: IDEAS

Kansas Agriculture Speech
Gifts for Employees
Children's Hospital Fund
Japanese Food Promotion
Direct Mail Ideas

Think about promotional program for Children's Hospital:
1. Total Cost
2. Viability
3. Press Coverage

Contact: Ray Green, Hospital Administrator 456-7890
Beverly Ellis, Director WKAN 123-4567

The program was created to tighten the connection between executives and their IBM PCs. The new Mac version is aimed at doing the same thing to users of the evolving Macintosh Office system, people presumably busy enough to take full advantage of the program's varied features. Its designers, who clearly believe that more is better, have cleverly harnessed the Mac's unique iconography to turn the *Organizer*'s screen into a kind of white-collar cockpit that looks more like a control panel than a desktop.

The program operates through a cluster of icons in the righthand corner of the screen that define what you can do. There's a Calendar icon for making appointments; a File Cabinet to open your index of files; a Phone icon for automatic dialing; a Calculator; an Alarm Clock; an Index Card for opening workspaces; a Printer icon; a Carbon Paper icon for cross-referencing; a Rubber Stamp for pasting messages onto index cards; and a thermometer-like Data Gauge that shows how much memory is left. Pull-down menus add extra features.

The lefthand corner of the screen displays either a calendar or an index of available files. The lower half of the screen, meant to resemble a limitless Rolodex, is where you actually get down to work. A series of Label panels is stacked three deep above a writing area where you can make notes, draft letters, enter addresses, perform calculations and schedule appointments.

The number of cards you can set up is limited only by your Mac's memory; the type of information only by your imagination. The cards are easy to alphabetize and locate. Thanks to the Carbon icon, duplicates stored in separate index files are updated automatically whenever the originals are changed.

The Desk Organizer also includes a version of the legendary but previously vaporous Mac application called The Switcher, rechristened here as Meta. Meta turns unused memory space into a "virtual" memory that can hold a second application, such as *MacWrite*. By mouseclicking Meta, you load the second program into the virtual memory, making it possible to instantly switch back and forth between it and *The Desk Organizer*. The effect is breathtaking the first time you see it in action.

Of course, there are limitations. You'll need to use *The Desk Organizer* as your start-up disk, turning a package of accessories into a primary program; and your computer will need enough memory to carry both of the programs in Meta. Because of the memory drain, Meta is only partially available on the 128K Mac. Moreover, it is not fully compatible with all programs. Two of the several I tried with Meta triggered error messages. However, Warner maintains a friendly technical hotline that will help answer questions about Meta-compatibility and other *Desk Organizer* idiosyncrasies.

One feature I especially like is *The Desk Organizer*'s unique calculator. Instead of superimposing the image of a pocket calculator on the screen, another file of index cards opens up. Each card includes all the information for one calculation. Let's say it's figuring out the present value of an annuity. The top line lists all the variables. The next line lists the actual formula. The rest of the card explains in plain English what the variables mean. To do the mathematics, you type in your own numbers for the variables then click the Calculator icon. Your answer quickly appears after the equal sign in the equation, making "What If" calculations a snap. All you have to do is alter one or more of the variables and click the Calculator icon again. The program comes stocked with useful formulas (in a file misleadingly labeled Tutorial) and you can add your own simply by typing them in. This is higher math for the rest of us.

If you have a modem, the Dialer allows you to call directly from phone numbers stored in any of the indexes. A window lets you plug in area codes and special prefixes and a useful logging function records each call's date, time of day and length, the number dialed, and the name of its Index Card.

There's a lot here at a reasonable price. But it won't be for everybody. Many Mac users will find all the help they need among smaller utility programs that sit in the accessories menu and cost $20 to $50. Owners of 128K, single-drive machines might want to wait until they get more memory and, maybe, an external drive.

Finally, clutter lovers may find that *The Desk Organizer* runs contrary to their natural inclinations: it's almost *too* organized. If you're an Oscar Madison, you'll think twice. On the other hand, Felix Unger would love it.

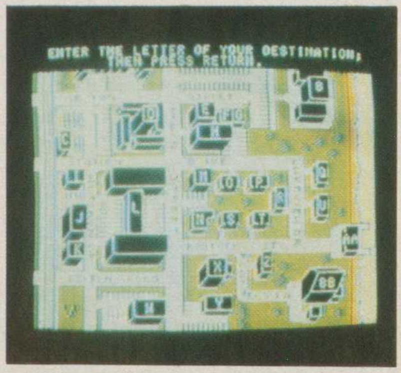
(Stan Pinkwas)

FELONY!

Designed by Charles S. Goldstein and Tung Lee
CBS Software, 1985/C-64/$34.95

"Something is rotten in the city of Huxley. Thieves, kidnappers, terrorists, and murderers are running rampant! And the Chief wants your badge if you can't stop it!"

So reads CBS Software's description of *Felony!* But the description makes the game sound better than it is. *Felony!* has twelve mysteries which you, as one of Huxley's top cops, have to solve. It is a text adventure, but as one computer game expert noted, "The text is not contained within the program, but rather, within the documentation."



ENTER THE LETTER OF YOUR DESTINATION,
THEN PRESS RETURN.

Of the 12 mysteries in *Felony!* you choose one of seven murders, two thefts, a kidnapping, an act of vandalism or one of terrorism. Up to four players may compete against each other or one player can play against time. Each mystery's case history is outlined in the Police Manual, one of three booklets that come with the game.

You start out at either the police station or the scene of the crime, depending on the scenario. You are usually given a limited amount of game time in which to come up with the solution. Each action displayed on a menu uses up some of the time. The actions are different depending on where you are. At the police station, for example, you can check computer records, ask the F.B.I. for information, or talk to your boss. One choice you always have is going to another location.

When you choose other actions, such as questioning a suspect or searching a room, a short list of numbers will appear on the screen. Each number is a clue to which you are referred in the clues booklet. If one of the numbers is 164, you turn to #164, and find, "There are three manila envelopes. Each contains a set of photographs."

Once you think you have the solution, you can choose to solve the mystery. You then tell whoever else is playing what your brilliant deduction is and read the real solution. If you're right, you win; if not, gameplay continues for the other players.

The clues booklet is a nice concept, but unfortunately, as in *Murder By the Dozen*, it doesn't work too well. Looking up clues and writing down the ones you want to remember takes a lot of time. Many are fake clues which read "No clue." It is a frustrating waste of time checking every clue by hand when the computer could deliver the information instantaneously. You could always blindfold your opponents.

The mysteries themselves are difficult to solve, because you can't ask specific questions, such as, "Tell me about the bottle of poison labeled brandy." The only way to get information is the booklet.

Perhaps the best choice is to play by yourself, since once you've looked up the solution there's no mystery left to that particular problem. Still, there *are* 11 more to go.

(Michael A. Burstein)

BOUNTY BOB STRIKES BACK!

Designed by Bill Hogue
Big Five Software, 1985/Atari/Cartridge

If there's anyone out there that hasn't yet tired of the exploits of that famed miner, Bounty Bob, even after his appearances in *Miner 2049er*, *Miner 2040er II* and *Scraper Caper*, please step forward. But if you're fed up with the old, overdone format of running around the screen while leaping villains and amassing treasures, *Bounty Bob Strikes Back!* has nothing for you. In fact, you might as well skip the rest of this review. On the other hand, if there's nothing you'd rather do than stomp on mutants in *Miner 2049'er* and you're bored with the same 10 playfields, *Bounty Bob* will probably make you jump for joy.

As with Bob's previous incarnations, the hero is an intrepid miner caught in some very strange tunnels filled with dangerous radioactive mutants, slides, tubes, chutes, teleportation booths and gobs of valuable trinkets. The mutants are deadly, and must be avoided — except for a short time after Bob picks up a treasure. There are 10 new screens to master, from the "simplest" — a tortuous maze called "Bob's Morning Calisthenics"—to the more complex, including one level so convoluted that even four hours of continuous play could not reveal its secret.

The dangers you face in *Bounty Bob* are the mutants and the mundane, such as falling off a high ledge. In addition each level introduces at least one new play element designed to make your life a little more difficult.

Actually, "a little more difficult" is an understatement — *Bounty Bob Strikes Back!* is very difficult from the start, and it only gets harder. This isn't meant to be a complaint, although the high level of difficulty certainly interfered with *my* enjoyment of the game. True *Miner 2049er* aficionados, however, will probably breeze through the first few screens and find the others no more than slightly frustrating. But people who aren't fanatic action-game players should probably think twice before spending money for a game in which they may never get beyond the first screen.

(Charles Ardai)

QUINK

CBS Software, 1985/
Apple II series,
C-64, IBM PC,
PCjr/Disk/$34.95

Quink is one of those programs that's difficult to categorize. It's a matching-type game that also requires a broad range of knowledge—trivial and otherwise. It really falls into the somewhat eccentric genre I call "show-off" games, such as *Trivial Pursuit.* And like all such games, how much you like it will depend on whether you get to show off or get shown up.

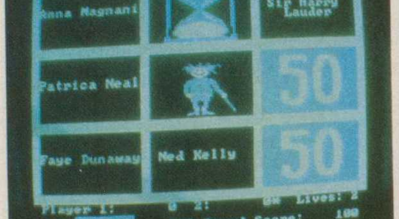
Right now, I like it quite a bit, having just had my most successful round to date. However, I suspect that moving to another difficulty level or category could change my mind—but only temporarily.

Quink can be played by one or two players. I prefer the solo version mainly because of the inherent awkwardness in two people using a keyboard, even in succession. And if you decide to let one person do all the inputting, you run the risk of someone else forgetting which keys are which just when you're about to break the bank, so to speak. However you decide to play it, though, you're in for some challenging entertainment.

The gameplay is quite easy, once you become familiar with the position of the keys you need to use. There are six categories with five levels of difficulty. the screen shows a three-by-three arrangement of squares—the middle one is occupied by a cheerful gentleman who seems to be there chiefly for moral support. You must choose the items in the squares that aren't associated in some (not always obvious) way, and indicate your choices by hitting the appropriate keys—and do it within the time limit. On some levels, you may find that all or none of the items match; you get 100 points for catching these. There are also timed challenge rounds in which you must either find the one non-matching item, or the one item that matches the one in the center square. You can really rack up points on these if you keep your wits about you.

The scoring looks a little confusing at first, but is actually quite simple. Each round has a goal score. Each correct choice is worth 50 points until you reach the goal score, and 100 afterwards, up to the challenge round. You also have three "lives," one of which is lost whenever you make a mistake in a regular round. CBS has also kindly incorporated the arcade convention of a bonus life for every 10,000 points.

One of the problems indigenous to games like this is that errors will creep in no matter how careful the creators are. Some are trivial, such as Pooh Corner referred to as Pooh Corners. Some can lose you a game life, such as designating a codpiece as a part of armor. (Neither I nor the *Oxford English Dictionary* agree with that one.) And some things you just know are wrong, even though you can't check them. As there were over 100 knights at Arthur's table over a period of time, it's possible that someone named Tor was among them. But I doubt it. On the other hand, once *Quink* decides what category something's in, it stays there. Calliope, for instance, is always a Greek muse and never a non-stringed musical instrument.



You have to expect the best from a trivia-type game that starts out with 60 subjects in each of five categories. *Quink* comes well up to expectations. While we're on the subject of subjects, let me recommend my personal favorites: Tools on a Swiss Army Knife, States of Intoxication and Nixon's Enemies List. All this and a sneaky sense of humor, too.

(Louise Kohl)

CALCULATED RISK!

Woodbury, 1985/Apple II/
Disk/$29.95

Calculated Risk! is Woodbury Software's newest entry in the educational field. Its other offerings, the programs in the Playwriter series of creative writing aids, are superlative examples of what can be done when a little creativity and imagination is injected into software design. *Calculated Risk!* is the same mold as its predecessors, and while it lacks some of their charm and potential for reuse, it is still a unique and enjoyable learning aid.

This time, mathematics is the subject. As a modern-day archaeologist with a track record a mile long (unlike, as the clever instruction manual points out, "your lesser known colleague with an affectation for whips"), the player has a quest: to remove a famous, and extremely valuable, gold idol from the secret tomb of Cheops, in Egypt.

Before you enter the pyramid to do battle with mummies, invisible mazes, asphanxes and the like, however, you must purchase any equipment, weapons and supplies that you think you may need. This shopping spree takes place at the Marketplace of the Bedouin Buzzards, and is limited by the simple fact that the player has all too little cash to spend. There are four stores in the marketplace, all of which the player must visit prior to starting on his expedition. In each, the player can expect to be swindled and charged exorbitant prices unless he learns to master the fine arts of haggling and doublechecking prices.

A variety of supplies and charms are available, as are guns, bullets and food and water. For each purchase, a math problem must be worked out. For instance, assuming that you want to buy five loaves of pita bread at one dollar each, a quick calculation will reveal that five dollars is the total price. If the merchant in question insists on charging seven dollars, a press of the 'F' key (for "Forget It") will cancel the purchase. Sometimes you're forced to pay more than you want to; after all, water is an invaluable commodity for desert adventures, and you wouldn't want to leave the safety of the comfortably air-conditioned marketplace without it.

If a simple multiplication problem seems overly juvenile, not to worry—there are four levels of mathematic difficulty to challenge everyone from grade school students through junior high. Four skill levels are also available for those whose math is fine but whose mummy-chasing skills are a bit rusty.

More math awaits in the pyramid, again tempered by the skill level chosen at the start of the game. Here, however, you must also rely on more traditional action-adventure game techniques like negotiating labyrinths, avoiding a variety of death traps, and warding off evil spirits. Among the challenges to be overcome are passing a giant bottomless pit and a sphinx that allows safe passage only if you can answer its riddle.

Calculated Risk! is an unusual game in that it manages to blend normally dull, flashcard-style math problems smoothly into the plot of an exciting game. Not many programs bother to do more than print a question on the screen and wait for an answer. However, this game format leads to the inevitable question of whether kids will want to use it after they have completed the game. I would think, though, that the program's excellent graphics and music, along with the option of increasing the difficulty level, make it interesting for more than one sitting. However, you might want to consider this if the intended user gets bored very easily, as many children are wont to do.

Other than that minor gripe, there isn't much to complain about. *Calculated Risk!* is a quality piece of software, both as a game, and as an educational program. And in the field of educational software, to say that a program is both fun and educational is saying a mouthful.

(Charles Ardai)

MACH 5

Designed by Bruce Carver and Kevin Homer
Access Software, 1985/C-64/Disk/$34.95

If you're a Commodore 64 owner with a 1541 disk drive, you've probably spent a lot of time listening to your drive whir and rattle while waiting for your favorite programs to load. Maybe you've tried to use this time constructively by giving your monitor screen a thorough dusting or arranging your floppies in alphabetical order. Perhaps you've even spent the time looking through catalogues for a third-party disk drive that could speed things up a bit.

Well, before you trash your old 1541, you may want to check out *MACH 5,* a fast-loader cartridge from Access designed to make your 1541 load your favorite programs up to 500% faster. In addition, the MACH 5 package includes a disk organizer program which lets you easily catalogue your disks, and, for programmers, a utility program called BASIC + 4K which adds an additional 4096 bytes of BASIC workspace.

With *MACH 5* inserted into the cartridge port, simply turn on your C-64, and you're ready for action. Not only does *MACH 5* save on actual loading time, the program saves typing time as well by allowing you to enter lengthy commands with just a couple of keystrokes. For example, the familiar 'LOAD"*",8,1' is replaced with ⌂. Other simple commands let you save programs in memory, send DOS commands to the disk drive, open and close command channels to the printer, produce a hard copy print out of the screen, and silence that annoying disk drive rattle. For a complete menu of all *MACH 5*'s commands you simply enter ◊ M.

COMMODORE 64™ AND 1541 DISK™ ENHANCEMENT PACKAGE
MACH 5™
FAST LOADER (CARTRIDGE)
Load Programs 500% Faster
BASIC PLUS 4K (DISK)
Add Additional Basic Workspace
DISK ORGANIZER (DISK)
Catalog Your Disk Library
ACCESS
Software Incorporated

While Access claims that *MACH 5* will load 99% of all software, you should know that if you come across a program that won't load properly, you don't have to turn off your computer and remove the cartridge before booting your disk. *MACH 5* can be disabled by entering ◊ D. Even with the fast-loader disabled, you'll be able to use the same easy commands.

So just how fast is *MACH 5*? Although Access claims *MACH 5* will load programs up to 500% faster, this is only possible with very long programs consisting of a single file. Out of ten popular programs that I tested using *MACH 5,* all loaded without any problem, although three took just as long as usual. The other seven loaded an average of 215% faster and Access' own *Beachhead* topped the list at an impressive 300% faster load. This means that overall, *MACH 5* will cut the time you spend booting your software in half. Here's their "normal" (first number) and souped-up loading times: *Archon*: 3 min. 5 sec., same; *Beachhead*: 2 min. 30 sec., 50 sec.; *Boulder Dash*: 50 sec., 20 sec.; *F-15 Strike Eagle*: 2 min. 20 sec., 53 sec.; *Lode Runner*: 1 min. 25 sec., 40 sec.,; *Sargon II*: 50 sec., 30 sec.; *Summer Games*: 1 min. 5 sec., 40 sec.; *Trivia Fever*: 2 min. 5 sec., 1 min. 20 sec.; *Zaxxon*: 2 min. 30 sec., same; *Zork*: 1 min. 35 sec., same.

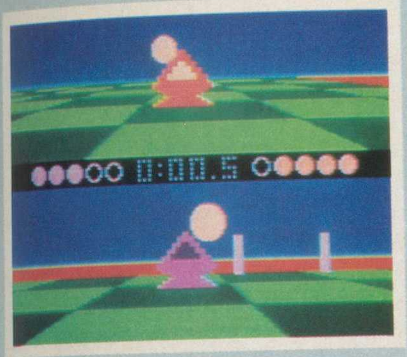
While saving twenty seconds to a minute of loading time may not seem like a lot, even if you boot an average of only ten programs a week, you could conceivably save over eight hours of loading time in the next year. Wouldn't you rather spend that time using your favorite programs than listening to them load?

(Bob Guerra)

BALLBLAZER

Designed by Lucasfilm Games
Epyx, 1985/Atari, C-64/Disk

Since its brief introduction for the 5200 in 1983, *Ballblazer* has been hailed as everything from the *Pong* of a new generation to a programming masterpiece destined to lead home computer software out of its slump. Now, I don't want to sound like an iconoclast, but it is none of those things. *Ballblazer*—in ei-



ther of its incarnations—is an adequately entertaining game that has had excessive media hype.

Ballblazer is a two-player, futuristic version of soccer, played on a giant checkerboard grid. The display is split horizontally in half (as in many racing games), each section representing the view out of the front windshield of the player's Rotofoil, a small, pastel-colored vehicle. At either end of the field are two energy goalposts. In the center of the field is a glowing ball of energy. The object of the game is to pick up the ball and shoot it through the goal more often than one's opponent in a pre-set time limit.

Playing *Ballblazer* is exhilarating at first because of the jazzy theme music and the almost hypnotic effect produced by the graphic of a Rotofoil gliding across the field, but it quickly becomes tiresome. A one-player option improves matters somewhat, but there is little that can be done to change the fact that underneath all of the admittedly excellent hi-res glitter lies nothing more than a repetitive version of soccer.

So many improvements suggest themselves—it's a wonder that the programmers at Lucasfilm Games didn't think of any before they put the game out on the market. Why only two players? How about some obstacles on the field? Or, if they had really wanted to make the game interestingly, the programmers could have put in multiple game levels. Or onboard weaponry. Or changing game objectives—one round of cooperation in attaining a goal, for instance, followed by a round whose only goal is for one player to bump the other off the grid.

Ballblazer is unfinished. What there is so far is intriguing, but too superficial to make for enjoyable gameplay. It's sad to see a game like this one realize its full potential, but sometimes that's just the way the ball bounces.

(Charles Ardai)

THINK FAST

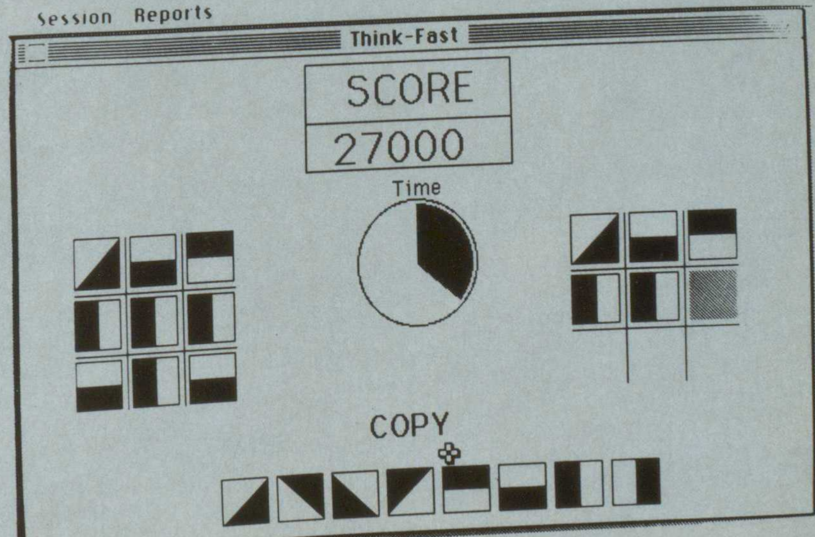
Designed by Sherwin A. Steffin and Dave Harris
Brainpower/Apple II, Macintosh/ Disk/$39.95

The packaging of *Think Fast* claims that you can "improve your memory regardless of your age or present ability." You can react to this in one of two ways: you can say either "Ha!" or "Regardless of my *what?*" In either case, you're going to be pleasantly surprised by the program. It is neither a deadly memory game which teaches you embarrassing catchphrases by which to remember the name of your best friend, nor is it a stuffy memorization exercise involving mnemonic devices. This is pictures and letters and a lot of quick action for your fingers to say nothing of the strenuous workout it gives to your left and right brains. And, Lord knows, your aerobics classes don't address that problem area nearly enough!

Think Fast presents you with three different trials: those that ask you to compare, those that ask you to copy and those that ask you to recall. Compare trials present you with two sets of letters, numbers or blocks that resemble semaphores positioned at the right and left center of the screen. Within a certain time limit, you must decide whether or not these two sets are identical or different. You inform the computer of your answer by placing the cursor over the word "Same" or "Different" and clicking the mouse button. There is a little clock in the center of the screen which shows the time elapsing right before your eyes. If you don't read the instructions first, this is apt to make you a little nervous. If you read the instructions, however, you will find out that it doesn't matter how long it takes to complete any task as long as you complete it before the clock runs out. Still, if you're Highly Competitive (and we know you are), you'll try to get it done before the sweep second hand is even a quarter of the way down.

The Copy trials are much harder. You only get little squares that resemble semaphore flags. Portions of the squares are shaded so you've got squares in which the right half is dark, the left half is dark, the upper half is dark and the lower half is dark. You've also got squares divided diagonally. The computer gives you a pattern made up of these squares and then asks you to create the same pattern. The computer-generated pattern remains on screen for you to refer to, but it is very little help. You'd be surprised how difficult this is, especially when the number of squares in the design is greater than, say, one. Perpendicular divisions and diagonal divisions all look the same and you forget the difference between left and up mighty quickly.

A line of the squares runs along the bottom of the screen. The way you copy the design is to place the cursor over the square that matches the upper left hand square in the computer's design and click the button. You proceed from left to right and from the highest row to the lowest. Most of these designs look like demented tic-tac-toe games. To correct an error, just click anywhere in the de-



SCORE
27000

sign you're making. When you think you've copied the picture exactly, click "done." The computer secretly laughs at your pitiful attempts especially after the number of squares in a pattern gets to, say, 12, in four tiers of three each.

The third task, Recall, is trickier in that it gives you a pattern or set of letters or numbers, lets you look at it until you get complacent and then takes it away and asks you to duplicate it. With no reference, this is tough and you find yourself saying the patterns out loud to yourself in a catchy rhythm ('RSP,PRV. RSP,PRV.") It's best to play this part only when you're sure you're alone. Once again, the speed with which you finish is not important. What's important is doing it within the time limit.

This may all sound very easy and it can be, depending on what you set the System Manager Variables at. The System Manager Variables are what make *Think Fast* even more fun. Each variable has five settings. You set the speed (fast, medium and slow) at which the trials are thrown at you. You set the Difficulty (from least to most) and you set the Risk Taking Variable (least risky to most risky). The faster, more difficult and riskier is, naturally, worth more points. You can save trials to disk and add sets to them.

At the end of each session, you can call up a Session Summary and Session Report which tell you how well you've done overall and how well each half of your brain has done. The score is tough to figure out. The numbers can be incredibly high which will lull you into a false sense of genius. Diehard academics will be proud of scores like 33,750. They will not know what they mean but they will be happy with the sheer size. There is an explanation of the relationship between the variables and the score in Appendix A but it is more difficult to interpret than Talmudic commentaries. It involves mathematical formulas with letters and numbers and parentheses and little x's. The complete Session Report even gives you a breakdown of your progress and tells you which variables you chose in case you've forgotten already. It still makes no real sense. The only way to really make the scores count is to play with a friend and compete. Then no matter what the real meaning is, you'll know which of you scored higher and that—despite what the Fellow said about how you play the game—is all that matters.

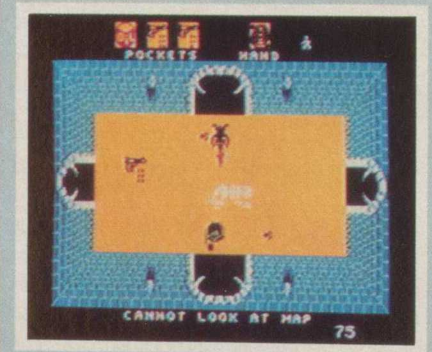
(Randi Hacker)

ALCAZAR: THE FORGOTTEN FORTRESS

Designed by Tom Loughry
Activision, 1985/Apple II series, C-64/ Disk/$34.95

The concept of this game is intriguing, if not exactly original: A lone adventurer stands in open terrain, gazing out over a countryside dotted with varicolored castles, including one in the distance which is especially big and black. Rivers with broken bridges, a wide lake and thick forests block your way at certain points, but being a good adventurer, you know how important it is (for some reason or another) to get to the far, dark castle and complete the quest—to sit on a jeweled throne and watch the computer screen go all rainbow blinky.

Alcazar: The Forgotten Fortress is actually closer to *Pac-Man* than something like *Wizardry*. You wend your way through castle rooms, searching for objects and avoiding deep pits and monsters. There are no magic spells, no characteristics or role-playing. Mapping isn't really necessary, since all the various castles are simple two-story, four-room-by-four-room structures (except Alcazar itself, which has three stories). The geography is easier to store in your head than on paper.



Tom Loughry's concept owes much to the two *Advanced Dungeons and Dragons* games for Intellivision, which similarly had the idea of varicolored castles where an adventurer can find valuable items (in *Alcazar* these include a raft for the lake, a rope for the broken bridge, and a ring to control a magic carpet over the thick woods). The second *AD&D, Treasure of Tarmin,* also used the ploy of having the adventurer hold various weapons in reserve, each of which had to be "rotated" to the hand before it could be used.

The execution of this last option is the game's chief flaw. Instead of using the function keys or numbers (as *Treasure of Tarmin* and *Gateway to Apshai* do, for example), *Alcazar* puts everything in the joystick, so that the fire-button is used both to shoot a weapon and to change weapons—as well as to get a look at the main map! Putting all this pressure on one little button is silly when the designer had the whole Commodore keyboard to play with. Losing priceless ammunition at a critical point in the game can be more than a bit frustrating.

On the other hand, the strategy required in remembering which weapon to use on which monster, and where to find the weapons is the most compelling part of the game. All monsters can be shot with the revolver—if you can shoot fast enough. Oil amoebas can also be killed with bleach; griffins smothered in oil; and genies dissolved with water (or that same green ring that controls the magic carpet). There are also fast-moving guards (keeping watch over prisoners who, if freed, give the adventurer an extra life), tigers and tarantulas (both fairly slow and easy to avoid or kill), and flies (which seem to be mere red herrings at first, until you realize that their drone drowns out all the sound clues from the other monsters).

Most of the castles also have bottomless pits, and on higher levels there are small pits into which you can lure most of the monsters. Each monster gives some sort or warning from the next room (either visual or aural), and making noise in a room next to a monster will alert any creature within hearing distance.

Placement of the red, blue, purple and black castles changes randomly each time a game begins. If you don't like the visual layout, there is no way to restart a game except by playing it out to the bitter end—or rebooting the disk.

There are four levels of difficulty. The first and second are fairly easy, but by the third (and especially the fourth) the monsters move at lightning speed and the player starts with fewer lives and less ammo. Curiously enough, the easiest castle to survive is Alcazar—if you can get there. But when you finally make it to the throne and see those flashing lights, it somehow isn't the thrill you expected.

(Rob Baker)

Load & Run

A Discriminating Look at New Software

GATEWAY

Story by Michael A. Banks

Artex/Macintosh/$49.95

To say that *Gateway* is a flawed program is like saying that the Titanic had a spot of trouble on its maiden voyage. "Flawed" cannot begin to indicate just how frustrating it is to try to communicate with this game, how carelessly it was put together and how sloppily it was written. And such a great premise, too. What a shame that the greatness of the premise was exceeded only by the incompetence of the execution.

The story is much like something by H.P. Lovecraft, in which other worlds lurk behind locked doors on third floors of Gothic houses. It seems that your uncle Bertrand Von Wyk, who has been missing for more than five years, has been declared legally dead (we could make a nasty crack about how you would die too if you found yourself part of this game, but we'll refrain), and left you a rather rundown building somewhere in California. Its walls are cracking, the antiques are gathering even more dust and there's really nothing of value. But you do find some old journals of his which you get caught up in reading, and which seem to confirm the suspicion that Old Uncle Bertrand was not playing with a full deck. Apparently, there are some secret doorways to another dimension located in the house. Apparently, Old Uncle Bertrand used to make regular visits to this place to visit a friend of his named Loren. Apparently, Uncle Bertrand doesn't find it strange that a man is named Loren. Still, you're intrigued. You decide to investigate, and this is when the trouble begins. Up until now, you've only been working with the support material which, while reminiscent of Infocom support material, lacks the biting wit and substance. Once the game begins, however, everything just falls completely apart.

The first and most grievous of all the problems is the case of the missing information. Not everything in a room shows up in the description. This means that you often don't find out about a very important object until you've either (a) made a mistake in the action or (b) made a mistake in the wording. Perhaps the authors of the game feel that by not giving you all the facts they have, in some way, increased the challenge. This is untrue. Not having all the facts does increase something, but it isn't the challenge. It is your desire *not* to play the game. Let me give you an example. You are in a small office. To the east is what remains of your uncle's shop which deals in "antiquities" (sic). If you walk east, you will be given a description of the room which informs you that there are no items of any real value, that the windows are dirty and that there is an empty cash register and an old flute on the counter. At some point, a man in a gas mask and camouflage clothes enters and, on seeing you, says something and leaves. If you stay in the office even when you hear a noise in the outer area, you will find that (a) the flute is missing and (b) the display case has been broken and pieces of glass are lying all over the floor when you eventually do walk out. Reboot and look for the display case before the person enters. There is no mention of a display case at all in the description. None.

> What Gateway needs above all else is a good editor, so that this enticing and intriguing idea can fulfill its promise. I want to meet Loren.

This sort of thing happens with some regularity and not always with objects that have no bearing on the outcome. There's something left out of the description of the basement, for instance, which means the difference between getting into the other world and not. The only way I found out that it was there was to type in a command which the computer didn't fully understand. Its response revealed the existence of the item we are deliberately not mentioning. This is an unforgivable oversight. We adventure gamers like a challenge, but we like to have some idea what we're dealing with.

In addition to leaving out crucial elements, *Gateway* suffers from three other ailments: First, there are a number of gratuitous occurences which seem to have been put in just so that there would be something to do. An example of this is the desk. You examine the desk and find that there is a drawer. You type in "Open desk drawer," and the computer responds by saying, "You'll have to sit down first." Why?

Second, some of the solutions make no sense. Case in point: the rat in the attic. There's a rat in the attic. When you try to pick up the featureless black rod, a rat comes and puts it in his mouth and stands and glares at you rodentially. He will not give it to you. You can't stab him with your knife collection nor chop his pointy little head off with your sword. You check your inventory and find you have a flute. Ah ha! You think. I'll play the flute and make like the Pied Piper of Hamelin. Try it. That's *not* the solution—though it should be. The solution is to give the rat the jewel. Why?

Third, it is too cute to bear. The cuteness level is epidemic. For example, if you try to quit the game without saving, a little Macdialogue box will beep at you. Inside it will say "Giving up already?" to which you get a multiple choice answer: "No way. . .I forgot to save" or "Yes. . .I can't take it anymore." Even the built-in hints option (which, like the game, is a good idea) is cute. You can ask for three degrees of hints—from subtle to "The Answer." When you want to exit this function, you click "That's enough" instead of "Cancel."

And I won't even go into what happens if you type in or click "Panic." Believe me, it is unendurable. There are many more problems. Too many more problems. Certainly too many to fit here.

Just because a game is essentially all prose (you do see graphics sometimes although you can opt for just text) that doesn't make it an Infocom game. The desire to imitate that company is noble, but this program falls far of that standard of excellence. What Artex needs, above all else, is a good editor so that this enticing and intriguing idea can fulfill its promise. Otherwise how will we ever meet a man named Loren?

(Randi Hacker)

MacStuff

What's New for the Big Apple

By GORDON McCOMB

I was playing *Lode Runner* the other day on my Macintosh. If you're not already familiar with *Lode Runner*, it's one of the premier arcade "ladder" games out, where you play a conniving little thief who goes around snatching up bags of cash. Chasing you, ready to put you on ice, are numerous members of the police.

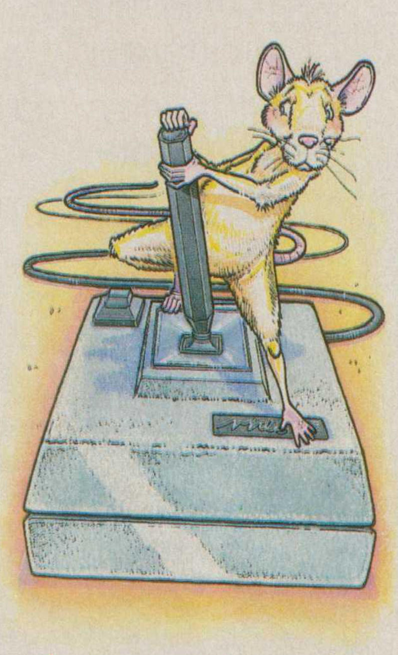
While I was playing, I couldn't help but think that something was missing. I was pushing the Mac's mouse around the table, directing my thief to the cash bags and up and down ladders. On more than one occasion, in a tight spot surrounded by my pursuers, I'd move the mouse to escape—but nothing would happen. Or, more often, what happened was not what I wanted to happen. It was then that I realized that the Mac's mouse may be ideal for pointing and clicking icons, and drawing pretty pictures, but it's not all that great for playing arcade-type games.

I was about to pack up my copy of *Lode Runner* and sell it off when a small, innocent-looking box came in the mail. Inside was a joystick for the Mac, something I didn't even know existed. Following the instructions, I disconnected the Mac's mouse and plugged the joystick in its place. I popped *Lode Runner* into my disk drive, and in no time, I was dashing up and down ladders and scooping up cash bags like the pros. I tested the joystick out on other Mac games: *Airborne!*, *Mac Attack*, *Frogger*, and a slew of others. I was in arcade heaven: all played much better with the joystick than with the mouse.

The handy little device I looked at is called MouseStick, from Video7 (408-943-0101). More than a simple joystick, the $59 MouseStick is really a joystick controller. It accepts any Atari-type joystick. Direction and fire signals from the joystick are intercepted by the controller, which changes them into the kind of signals the Mac is used to getting from the mouse.

The signals generated by the Mac's mouse consist of a series of pulses. The faster you move the mouse, the quicker these pulses occur. To provide flexibility, the MouseStick is equipped with a slide control that lets you vary the speed of the pulses it generates. For most games, you'll probably want to turn the speed all the way up. For more sedate applications, like using *MacPaint* and *MacDraw*, you'll want to turn the speed down.

The MouseStick is designed with two input connectors. One is for the joystick, the other is for the mouse. This way you can use either the joystick or the mouse at any time. To prevent undue confusion, the controller ignores the mouse altogether when you have your fingers on the joystick. I found the dual input feature useful, particularly since using a joystick to point at a specific object on the Mac's screen can be, at best, difficult. When precise positioning is critical, just turn to the mouse.



A mouse is great for clicking icons, but for games you need a joystick.

Another time the dual input comes in handy is when using *MacPaint*, Apple's infamous free-hand drawing program for the Mac. With *MacPaint*, you have at your disposal several drawing and painting tools, which include a paintbrush, a pencil, and a spray can. You use the mouse to coat the *MacPaint* drawing easel with paint. With the mouse, it's pretty hard to draw straight lines, so *MacPaint* allows you to "constrain" movement horizontally, vertically, or—in some instances—diagonally, simply by holding down the Shift key.

By their nature, joysticks can move *MacPaint*'s various drawing tools in straight 0, 45 or 90 degrees only. You don't need to hold down the Shift key. The best part about this is that you can easily alternate between freehand mouse drawing and straight-line joystick drawing, all without letting up on applying the paint.

Though the MouseStick comes with a Kraft joystick (and a rather mediocre one at that), any Atari-type joystick can connect to it. I found the interchangeability a real boon; not only are Atari-type joysticks in plentiful supply, they're available in a variety of models and at prices starting from under $10.

In researching the MouseStick, I found several similar models. One from the Kette Group (612-559-5728), the MacNifty Joystick Converter, does much the same thing as the MouseStick. It has a speed control on it and comes with an Atari-type joystick. It doesn't, however, let you connect both the mouse and joystick at the same time. The Kette Group Joystick Controller lists for $45.

Another joystick product comes from Frederickson & Shu Labs (FSL) (312-946-0710). Rather than connect to the Mac via the mouse port, the FSL controller hooks between the Mac and the keyboard. Software included with the controller lets you assign the various joystick movements—up, down, right, left, and fire—to specific keys. You might, for example, tell the controller that you want the "E" key to be interpreted as upward joystick movement. Obviously, the FSL controller is best suited for those games and applications where you normally interact with the program through the keyboard, such as *Maze Wars* and *Run for the Money*. No price was set for the controller at this writing, but I understand that it will list at between $50 and $75.

If trackballs are your game, Assimilation Process (408-356-6241) offers the Mac Turbo Touch, a heavy-duty number that, like the Video7 and Kette Group joysticks, hooks up to the Mac through the mouse port. The Mac Turbo Touch is rather expensive for a trackball: $129. But judging by its rugged design, it should last a lifetime. For games, particularly the fast and frenetic types, I found the Turbo Touch a more than acceptable alternative to the mouse. It can also replace the mouse in more standard applications.

One of my favorite arcade games is *Space Invaders*, which is trackball controlled. A similar game for the Mac is *Mouse Stampede*, in which you must avoid being hit by a variety of deadly falling objects, including big chunks of cheese and shopping carts. Playing *Mouse Stampede* with the mouse is rather ho-hum, but when I plugged in the Turbo Touch, the game came to life. One hand racked the ball back and forth while the other pounded on the fire button.

Like the Video7 MouseStick, the Turbo Touch lets you connect both the trackball and mouse to the mouse port. For some reason, though, things didn't always seem to work quite right. The mouse and Turbo Touch seemed to be fighting each other, even when I was moving only one of them.

What other fun (and inexpensive) mouse alternatives are coming for the Mac? I don't have the details yet, but around the bend is a mini piano console that hooks up between the Mac and its keyboard. It's designed to be used with a new music composition/synthesis program coming from Hayden, the people who did *MusicWorks*. Also planned is a touch-sensitive "glider" board, suitable for moving the Mac's on-screen pointer or for drawing pictures. I'll pass on more information on these as I hear about them—but first I have to play another round of *Lode Runner*. **ce**

12 alternatives to whacking your kid.

When the big and little problems of your everyday life pile up to the point where you feel like lashing out—stop. Take time out. Don't take it out on your kid. Try any or all of these simple alternatives—whatever works for you.

1. Stop in your tracks. Step back. Sit down.
2. Take five deep breaths. Inhale. Exhale. Slowly, slowly.
3. Count to 10. Better yet, 20. Or say the alphabet out loud.
4. Phone a friend. A relative. Even the weather.
5. Still mad? Punch a pillow. Or munch an apple.
6. Thumb through a magazine, book, newspaper, photo album.
7. Do some sit-ups.
8. Pick up a pencil and write down your thoughts.
9. Take a hot bath. Or a cold shower.
10. Lie down on the floor, or just put your feet up.
11. Put on your favorite record.
12. Water your plants.

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For more parenting information, write:
National Committee for Prevention of Child Abuse
Box 2866, Chicago, IL 60690

Take time out.
Don't take it out on your kid.

Arcadia

Tokens Accepted Here

By MICHAEL BLANCHET

Two years ago I would have panned this game. Back then, most of us were so charged up over not-so-probable coin-op excursions into worlds of white hot violence and senseless destruction. A sense of humor, and even realism, counted for little or nothing in a game. Personally, I've long since tired of the Peckinpah-ish shoot-'em-up, but at the risk of being branded a wimp by my cohorts, I've kept my opinions to myself and half-heartedly continued to play *Robotron*. Today, however, games are changing and you don't have to worry about the peer pressure if you profess a fondness for something a bit lighter than, say, *Dragon's Lair*.

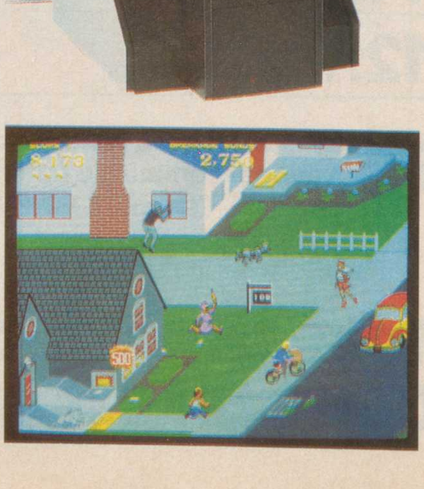
Could *Paper Boy* have existed back in the old days? Probably not. Until recently, kids were still delivering papers, tossing the tightly wrapped morning news from their bicycle seats. Who'd want to play a game that was essentially a busman's holiday? Taken at face value, *Paper Boy* would almost certainly have ranked with sure-fire losers like *Weed Puller, House Painter,* or even *Leaf Raker.*

Real paper boys, however, have gone the way of the milkman or at least that's the way it seems (a punked-out 12-year-old girl on roller skates delivers my paper). This nearly dead slice of Americana deserves some form of homage—aside from a Norman Rockwell painting—and what better place than a coin-op, where paper boys can relive their past runs?

Retired paper boys aren't the only ones who'll get a kick out of this game. *Paper Boy* is sure to appeal to almost everyone from all those kids who tool around town on their moto-cross style bicycles to anyone who ever dreamt of hurling a newspaper through a crabby neighbor's picture window. Business savvy as well as a taste for mischief are evenly weighted in this often hilarious picture of suburbia.

Looking down from a *Zaxxon*-like vantage point, the player pedals along his route—a neatly trimmed, well-maintained suburban street that's decidedly Californian. (Where else will you find cross streets lined with nothing but shapely blondes in exotic convertibles?) The idea is obvious—deliver papers to the bright houses (your customers). Not so obvious is the function of the drearier places covered with cobwebs whose doormats have less-than-friendly slogans. Here, you can wreak some well-deserved havoc and boost your tally in the process. Smashing darkened windows will increase your Breakage Bonus, a mischief meter that's added to your score when the day's run is completed. Granted, you might find perverse pleasure in strafing someone's yard with papers. Exhaust your supply, however, and you'll lose customers.

At least on Easy Street, the game's first level, provisions are made for successful delivery to all customers and a good deal of vandalism to boot. You can replenish your supply of papers by running over the bundles that lie on the sidewalk. On Middle Road and Hard Way (levels two and three) backups are less plentiful, and nearly always placed close to some sort of hazard—a fence, a storm drain or maybe an angry dog.



Drains, dogs, and street dancers may be some of *Paper Boy*'s more formidable foes, but they're nothing compared to the controls which take some getting used to. The controller is a set of handlebars. Left and right movement is easy enough—just steer in the desired direction. Speed, however, is a bit tougher to gauge and maintain. To move faster you must push the handlebars forward, back to slow down and stop. That may sound easy, too, but just try to steer at the same time. To me, it was like patting your head while rubbing your stomach.

Provided you master the controls, you'll find there's a lot more to this game than simply tossing papers. Just staying clear of the many hazards would be a game in itself. For those agile enough to make their deliveries without mishap, your turn is capped by a run through the Paper Boy Training Course. Jumps and targets line this stretch which is split midway by a stream. Of course you can dog it here if you like with no harm done. Taking the jumps however will increase your score as will stepping up your speed.

Despite the repetitive play mechanic, *Paper Boy* earns high marks in the humor department. For the full flavor of the game, it should be played outside a noisy game room, so you can hear the many subtle comments dropped by the paper boy as he makes his rounds. The attract mode, too, is good for a laugh although most of it goes unnoticed in your haste to start up the game. As another plus, the game manages to introduce new challenges without significantly upping the tempo of play. In most coin-ops the opposite is true—as you go farther, play gets faster—period. Here, even inexperienced players can get a glimpse of what the game has to offer, even if they only make it through two days' worth of deliveries. The curious and the brave can forgo Easy Street and start at either Middle Road or Hard Way, with double and triple point values as a payoff.

It's been a while since I've been so enthusiastic about an arcade game, so I hate to end this on a negative note. But why 50¢ and not a quarter? Come on fellas! You've done a great job with this one, but let's not get cocky. **ce**

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25 Under 17
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28 Over 30
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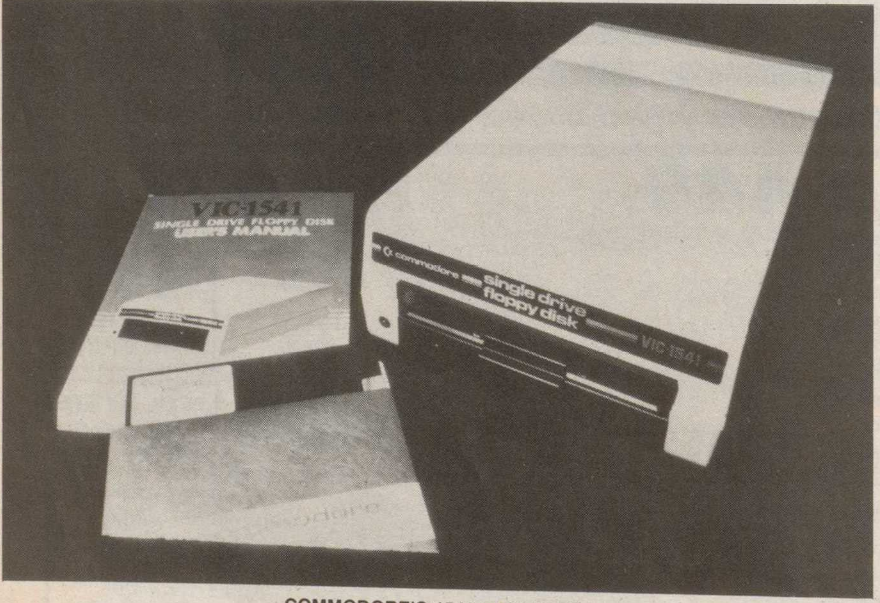
Q&A

And the answer is. . .

BY WILLIAM MICHAEL BROWN

Q: *I would like to point out one small mistake you made in the April column regarding the Commodore 1541 disk drive's "banging." You said that the "chatter" cannot knock the drive head out of alignment. Well, this may be true in the case of the protection schemes you discussed, but it is not true in the case of "error protection." For example, error 22 (found on popular programs like* EasyScript, *it tells the drive to go to a track and sector that does not exist) can cause the drive head to physically bang itself into the side of the drive. Most of the time, these errors can be avoided by typing the following BASIC lines* before *booting the program: OPEN 15, 8, 15 PRINT #15, "M-W" + CHR$ (106) + CHR$ (0) + CHR$ (1) + CHR$ (133) CLOSE 15. In no way do I want to put down programs like* EasyScript *that include this protection so the disk cannot be copied; in fact, I am using* EasyScript *to type this letter right now. I only wish Commodore would be kind enough to include these simple commands along with the instructions.*

(Adam Silverstein, Decatur, GA)



COMMODORE'S 1541 DISK DRIVE

A: Thanks for the advice, Adam. I guess "chatter" was the wrong word to use in my answer to that question, and I should have qualified it further by noting that disk drives can go out of alignment even with normal wear and tear and simple usage, such as daily BASIC programming on the same disk. Just like people, disk drives don't last forever.

Q: *I've heard that Atari's forthcoming 130XE will have enough memory to handle programs like Broderbund's* Ancient Art of War *and* Mindwheel. *However, I've also heard that since the 130XE uses the 6502 chip, which can only access 64K directly, third-party software houses may not want to translate their games that require 128K for the 130XE. Does this seem likely? Also, would you buy the 65XE or the 130XE, if those were your only choices?*

(Ted Stevens, Iron Mountain, NV)

A: Can't answer the last one, Ted. I never recommend that people buy anything, since I almost never know what their exact needs are (often, they have not tried figuring that out for themselves, either). As The Old Doc has told me time and again, "He who attempts to help without first knowing what the problem is should himself be helped, head-first, down a flight of stairs." Regarding the first question: *Mindwheel*, for one, is already coming out for the Apple II series, the Commodore 64, and the Ataris. It doesn't seem to me to be likely that you'll miss out on many 128K games simply because they're 128K games. It depends on the game, and whether the whole 128K has to be in RAM at one time for it to be playable; most of the time, it doesn't.

Q: *I was overanxious when I peered into your column and found a stupid mistake after I read your introduction of excess bragging. Well, I found it, my foolhardy friend.* Exodus *does not have five cards, it has only four. Well, I must sign off now, my overconfident half-orc (you sure sound like one).*

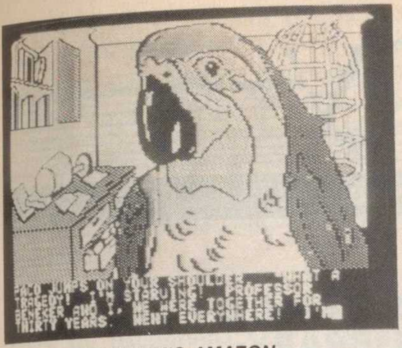
("The Graphics Warlock—
adventurer extraordinaire, lord
of all mazes from Llylagamyn to
Sosar, graphic artist of supreme
ability, and fantasy follower of
J.R.R. Tolkien"—address unknown)

A: Always happy to make the acquaintance of a fellow adventurer, especially one who can take a joke and dish it out too. Mistake noted; "typos" happen to everybody. By the way: It's "Llylgamyn" and "Sosaria," not "Llylagamyn" and "Sosar."

Q: *Help! I've got Telarium's* Amazon *for the C-64. I've made it to the first antechamber, and I keep getting killed by poison gas. How do you get through it? I'm on disk 4, and I'd really like to solve the game. By the way: You've got my vote for new Vectrex cartridges—they need to make some new games for it!*

(Shawn Whitley, Terrell, TX)

A: You're very, very close to the three gems at this point, Shawn, so in consideration of all the work you've already put in to get there (and the fact that a lot of *Amazon* players have real trouble at this point), I'm going to drop my usual obscure hint style and spell it out for you. You will, of course, remember the piece of paper that the computer decoded for you, and that it said something about inputting the door numbers in a certain way in order to get them to open ("Open ...1,2,3" or something like that). Well, the computer was right about having to input them using the actual door numbers—but the order in which they're supposed to appear in the command you type in is *not* "1-2-3." The order is actu-



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PACO JUMPS ON YOUR SHOULDER. WHAT A
TRAGEDY! I'M STARVING! PROFESSOR
BENEKER AND I, WE WERE TOGETHER FOR
THIRTY YEARS. WENT EVERYWHERE! I'M
```

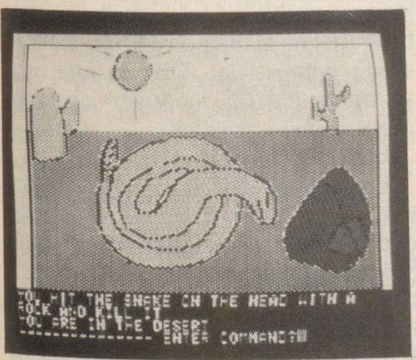
TELARIUM'S *AMAZON*

ally determined by the marks you see on those doors: 9 marks on door one, 13 on door two, and 11 on door three. You're supposed to input the door numbers in the order of the number of marks: the first door number is the one with the least number of marks, and the next is determined by the next higher amount of marks. Got it? Also, you aren't supposed to use *any* punctuation in the command itself. By the way, if anybody else is having real trouble with *Amazon* or other Telarium games, you can give the company a call at (617) 494-1200 and ask for the hint line—they're very nice folks there.

Q: *I have had Sierra's* Wizard and the Princess *for over two years now, and cannot figure out how to open the door in the tree. I have tried every command I can think of, and I am desperate! Will you have pity on me and reply?*

(Chris Wu, Pensacola, FL)

A: The door won't open from the outside, Chris, so you're barking up the wrong side of the tree. What you have to do is get *inside*—you'll have no trouble opening the door once that's accomplished. In order to get inside, though, you have to have met a certain serpent in your travels, who will have given you a certain magic word which is something that snakes say all the time, and then look around near the tree until you find a crevice in a rock. Say the magic word, then "Go Crevice," unlock the door, and open the door—you'll be inside. By the way, you've still got a long way to go; good luck.



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YOU HIT THE SNAKE ON THE HEAD WITH A
ROCK AND KILL IT
YOU ARE IN THE DESERT
----------------- ENTER COMMAND
```

SIERRA'S *WIZARD & PRINCESS*

Q: *I and my friends are sick of Atari! I write to them constantly, and what do they do? They ignore me, just like everyone else! In desperation, I am turning to you. Here are our questions: What on earth happened to the Atari Club? Is or isn't the Atari 7800 coming out? Will there be an adapter for the 5200 that will allow me to play all the 7800 games if the system comes out? And finally, where are all the new 5200 games (*Gremlins, Ballblazer, Track and Field, Rescue on Fractalus, *etc.) that I read great reviews on? They certainly aren't in the stores!*

(Greg Hanson, Tacoma, WA)

A: The Atari Club is defunct. No it isn't, and no there won't on your next two questions. As for the 5200 games, I'd suggest that you write Atari again and ask for a list of distributors who handle Atari games, then write to the nearest distributor for a list of stores he deals with in your area. The games are supposed to be available, I understand. *Ballblazer* and *Fractalus* are not out in computer versions.

Q: *I use my disk drive a lot, and have been wondering if it will hurt my disk or drive if I clip a square hole on the other side of the disk jacket so I can use both sides of the disk. I have been doing this for a long time and have seen no ill effects, but a friend of mine who read about it said it can be a problem. What's the story here?*

(Russell Jennings, Gonzales, LA)

A: I do the same thing, Russ, and I've never had a problem, and I know plenty of others who do the same thing with the same results. But there are two possible sources of disaster lurking here. One is the felt pad that the opposite side of your disk is pressed against whenever the read/write head is in operation. Dirt and gunk of all sorts can get stuck in the pad, and scratch the first side of the disk if you're recording on the second side, thus wiping out all or most of your data on the scratched side. Infrequent use of a drive cleaner may be one way to keep your mind at ease about this possibility. The other is that many cheaper, generic disks are produced with rather poor quality control, especially on "B" sides (after all, they're being sold as single-sided disks, right?). Trying to save to a side with flaws can often be disastrous. If you're worried about that, Quorum International Unltd. sells a program called Certifix that will test disks for flaws before you use them, and "certify" whether they're error-free or not. You can write to them at P.O. Box 2134, Oakland, CA 94614.

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ATARI 7800 PROSYSTEM

Q: *I have one question to ask about* Ultima III. *I have killed Exodus and am wondering: Where is the Jester in the Castle of Fire (Exodus' castle)? One of the people in the town said "Seek the Jester in the Castle of Fire." Know where he is?*

(Dan Blake, Acworth, GA)

A: I think you've got it a little wrong, Dan. If I remember correctly (Okay, I did go back and check), the townsman actually says: "Seek out the Jester in *the fire in Lord British's Castle.*" There's a jester in a lava pit in the dungeon of the castle, and if you have the Mark of Fire, you can walk over and transact with him. Here's the letdown: all he'll tell you is the exact route to the disappearing city of Dawn, which, if you've already killed Exodus, you probably know anyway.

Hard Copy

Book Reviews for the Computer Literate

THE POLICEMAN'S BEARD IS HALF CONSTRUCTED

By Racter
Warner Books, 1985/$9.95

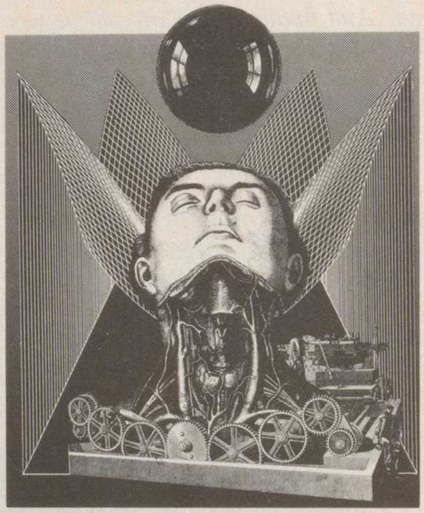
Not many first-time authors have had the kind of critical attention that Racter can lay claim to, including a review in the *New York Times* and a bibliographical note in Douglas Hofstadter's latest book. But then, Racter doesn't have very much at all in common with other authors, published or unpublished. As he is a computer program, you could even say Racter had been authored himself.

And this may be one of very few books to have more than one subtitle on the cover: "The First Book Ever Written by a Computer," "Computer Prose and Poetry by Racter," and—my favorite—"A Bizarre and Fantastic Journey into the Mind of a Machine." None of these does anything like justice to the contents of the book, which is at the same time whimsical, literate and completely off the wall.

Racter is a program co-written by William Chamberlain and Thomas Etter, and published by Mindscape. And that is all I have to say about the computer/software angle, because once you've read this book, or spoken with the author, you're going to find it hard to keep his unusual nativity in mind. You may, however, wonder what he's on.

The closest thing to Racter's style I've come across in my experience is that of a graduate student (of philosophy or English literature—take your pick) with a few drinks in him—except that Racter has a much better sense of humor and a less well-developed taste for academic jargon. Perhaps because English is not, so to speak, his mother tongue, he brings to it a sense of almost frivolous playfulness that is missing in most of his human counterparts. Not even the most Dada-esque of them has ever considered love among subatomic particles, to my knowledge.

The structure of *The Policeman's Beard* is something like the more aphoristic works of Nietzsche, who appears to be one of Racter's favorite thinkers. Unlike *Human, All Too Human*, however, this work is enhanced by some very imaginative collage art by Joan Hall. Ms. Hall's illustrations often reach the same heights of inspired lunacy that the text does, and I can't say fairer than that.



Joan Hall's illustration from *Policeman's Beard*

Besides aphorisms like "Reflections are images of tarnished aspirations," and "A black pig is like a tormented bat" (explained to any reasonable person's satisfaction in the text), several other literary genres are represented here. One that some, perhaps, may find over-represented is the fertile field of the limerick—Racter titles his contributions in this area, "Work of stupefying genius," followed by numbers. I fear the author overstates his case with these titles; they are not of the same high quality of most of his other pieces. (They are, however, a hoot.) And, as Racter himself would no doubt have said, had it occurred to him: "A foolish consistency is the hobgoblin of little minds." (That is, 16K or less.) The author also records conversations with his friends, from which I can only hope they have recovered by now.

All in all, this is a very impressive literary debut, and we can only hope to see more from this author in the future. Aside from a noticeable predilection for certain words—'chant' in particular springs to mind—Racter's prose is inventive, often erudite, sometimes insightful, and always entertaining—making the reader begin to question the arrogant claim that machines are not creative. How does the author see himself? "A tree or shrub can grow and bloom. I am always the same. But I am clever." Hear, hear.

(Louise Kohl)

SPECIAL EFFECTS LIBRARY: COMMODORE 64

By the Shaffer & Shaffer Applied Research and Development Group
1985, Ashton-Tate/$29.95

When I first got my Commodore 64, I couldn't do anything with it. OK, I could print my name a hundred thousand times or make a ball move on the screen, but I couldn't do anything substantial. Certainly I couldn't do what I really wanted to, which was to write games. Even knowing BASIC wasn't enough—doing anything of consequence on the C-64 required in-depth knowledge of POKE and PEEK locations, not to mention an intimate understanding of how to alter sound waveforms.

All this was very discouraging. Only a few hardy souls were willing to brave the *Commodore Programmer's Reference Guide* with all of its confusing charts and obscure explanations. The one attempt I made resulted in a disfigured sprite (it was supposed to be a car) moving two inches across the bottom of the screen.

I may be on my way to a brilliant career as a software designer yet because of the many software programming aids that have recently become available. There are sprite generators to help create on-screen characters, music programs like Electronic Arts' brilliant *Music Construction Set,* and even full game construction sets like Mastertronic's *The Games Creator.* Even these leave something to be desired, though—they are fine in their own fields, but they aren't compatible. That is, one can't transpose a *MCS* score into a piece of *MovieMaker* animation.

But now, relief is in sight.

Looking for all the world like a textbook (the unadorned yellow cover doesn't help dispel this image any), *Special Effects Library* is in fact no more than an oversized instruction manual for the software that it comes with. This software includes all the features that go into making computer games of the action, graphics-oriented variety. There is an excellent sprite generation and animation program with which programmers can design and determine paths for their on-screen characters, a good high resolution graphics program for drawing game backgrounds, and a rather average music program whose only real flaw is requiring programmers to work with waveforms and sound envelopes instead of F sharps and treble clefs. The disk that is packaged with the book even includes two sample games, a dull tank vs. helicopter game with no real point and an appealing, if simplistic, shooting gallery simulation.

The instructions and descriptions of special commands in *Special Effects Library* are exceptional; they explain everything that the programmer needs to know in a useful, helpful manner, while managing to avoid the condescension one finds so often in books of this sort. Especially notable is the book's explanation of the C-64's sound system—though I personally would have preferred a music, rather than computer hardware, based music program. It is to this book's credit that it is able to explain the confusing and frustrating field of computer sound generation in an entertaining fashion.

Besides the programs already mentioned in this review, *Special Effects Library* contains a version of BASIC that has been expanded with all of the commands that Commodore BASIC lacks. Commands like 'PAINT', 'CONNECT' and 'ACTIVATE' substitute for the C-64's clumsy sprite and graphics routines. Pre-drawn sprites and backgrounds are available right from the disk, as are pre-created sound effects, including one peculiar noise described as a "dink." Best of all are the administrative commands that allow users to APPEND a program from the disk onto another one in memory, to have the computer renumber their programs, to locate key sections of their programs with a FIND command similar to the "Find/Replace" command found in many word processors and to perform many other tasks that would be oppressively difficult without the *Special Effects* disk.

Special Effects Library is both well written and well programmed. In addition, it performs a useful, if not necessary, task, which is something that not many programs can claim. The book could stand well on its own, as could the software; together, they are an unbeatable combination, and a set that no C-64 owner should be without.

(Charles Ardai)

MACINTOSH THE DEFINITIVE USER'S GUIDE

By John M. Allswang
Brady Communications, $16.95

There are many pages in this book which are really outstanding. For instance, page 107. On page 107 is Cairo. Not the city on the Nile. The typeface on the Macintosh. And not only are the pictographs there (little hieroglyphics ranging from pineapples to band-aids to dinosaur), but the keys whch correspond to the pictures, too. Thus, without spending all that time writing it down yourself, you know that a small "j" in Cairo will give you an aerosol can and a capital "J", a locomotive engine.

And then there are pages 97 to 100, which is a section on how to increase the amount of available disk space with some judicious cutting and weeding out of unnecessary applications. One of the major complaints about the Macintosh is the lack of storage space on the disk. The Mac is very easy to operate but one of the prices users pay is lack of memory. All those functions which make it such a breeze take up space. Following Dr. Allswang's suggestions, you can take the approximately 67K you're given and expand it to as much as 160K. You do this by throwing out several fonts, getting rid of *MacPaint* (if you're going to devote the disk to word processing) or *MacWrite* (if you're going to devote the disk to graphics), and tossing the contents of the Scrapbook and Clipboard. This is great news.

Macintosh
The Definitive User's Guide
Brady
John M. Allswang

Pages 92 through 96 also distinguish themselves. They contain easy-to-follow instructions on how to use the Font Mover. The Font Mover, for those not fortunate enough to own a Macintosh themselves, is a handy little feature which allows you to put different typefaces on different disks. Transferring the typefaces is a very confusing business and very poorly (for "poorly" read "incomprehensibly") explained in the manual if you can call that explaining at all. Following Dr. Allswang's step-by-step directions, you can actually get through a font transfer without becoming a homicidal maniac.

And then there's the third section (pages 185-220) which is devoted to BASIC both Microsoft and Macintosh and lots of other techie stuff such as motherboards. And page 168 has a charmingly unprofessional little drawing of an apple that you just know Dr. Allswang drew freehand himself and which makes you just want to hug him.

These pages are worthwhile, filled with useful inside information and other dandy stuff. Unfortunately, however, the rest of the pages don't live up to the standard set by these selected samples. Thus, the book as a whole is just okay. There is entirely too much space devoted to procedures that are almost self-explanatory and which are more than adequately covered in the user's manual. In addition, Dr. Allswang's inclination to invoke the Registered Nurse's "we" drove us crazy after a while. We think that more should have been written on Macintosh secrets (such as the fact that if you press the Option key, the Shift key and the tilda key, you get little pictures which change with font and font size) instead of on its more mundane functions. Still, any book that has a page like 107 is okay in our book.

(Randi Hacker)

MICRO ADVENTURES: DOOM STALKER

By Ruth Glick and Eileen Buckholtz
Scholastic, 1985/$1.95

The seventh in the Micro Adventures line of computer aided novels, *Doom Stalker* is an interesting and enjoyable example of how home computers can be used to enhance literature. Not that *Doom Stalker* is literature—in fact, its thoroughly conventional "stop a mad genius from world domination" plot is rather dull on its own. However, the novel's use of computer programs to spice up the story is highly appealing, especially to the juvenile market for which it is intended.

Reminiscent of computer interactive fiction, the reader assumes the persona of Orion, a secret agent. As the story progresses, the reader is required to type programs into his or her computer to aid Orion in accomplishing his mission. The programs are exciting and unusually sophisticated (mostly along the line of arcade-style contests or puzzles), but never long enough to make typing them in too much of a chore.

Doom Stalker is a fun book to read and to play, not only because of the game programs, but also because of the jaunty, pleasant writing style of Glick and Buckholtz. *Doom Stalker* would be especially good as an introduction to programming for kids, since each program is accompanied by an explanation of how and why it works.

(Charles Ardai)

BUSMAN'S HOLIDAY

Continued from page 22

Dave Lebling *(Zork I, II, III; Suspect)*
Rogue, *Epyx*

"Played *Rogue* for several years on the mainframe at MIT. It has a lot in common with *Wizardry,* but it's more mindless. Great for when you have burned out all your neurons debugging a program, and you just want to go in and destroy a few purple oozes. Almost all the games I have really enjoyed have been mainframe games that have been squeezed down into a micro."

Bill Leslie *(Universe)*
Flight Simulator, *SubLogic*

"I really got hooked on the realism and infinite variety of possibilities in this program. Look at all the 'what if' simulations you can create!"

Jordan Mechner *(Karateka)*
Space Invaders, *Creative Computing Software*

"This program in 1979, on cassette, got me hooked on computer games. I played this program five to one over anything else since."

Steve Meretzky *(Planetfall; Sorcerer; Hitchhiker's Guide to the Galaxy)*
Pac-Man, *Atari*

"Mindless. Addictive. It is a great relaxant when I am burned out."

David Mullich *(Prisoner I, II; Empire I, II, III; Windfall; Network; Space II)*
Wizardry, *Sir-Tech*

"Without a doubt, my favorite computer game is *Wizardry.* It is one of the very few games that I have been addicted to. This is because it is the only true *gambling* game that I know of for a computer.

"In every computer version of blackjack, roulette, and poker, there is no stake at risk; the computer can simply generate more money for you if you lose. But in *Wizardry* the stakes are very high. The more you play, the more you risk losing literally hundreds of hours of work spent in developing a character. And the deeper you go into the dungeon, the greater the risks (as well as the rewards) become. This gives you a very powerful motivation to play the game successfully, and is, I think, the true brilliance behind *Wizardry's* success."

Gabrielle Savage *(Swiss Family Robinson; Spelldiver)*
Ballblazer, *Epyx*

"What an incredible experience I had playing this game at last year's Siggraph conference. They divided the whole room into two groups, and connected sixteen joysticks to each side. The game was displayed on a giant screen television. It was so exciting, resembling a gigantic soccer match, yet it was completely nonviolent."

Doug Smith *(Loderunner)*
Repton, *Sirius*

"The fast action, clean graphics, and playability of the controls made this a winner for me."

David Snider *(David's Midnight Magic; Dazzle Draw)*
Flight Simulator II, *SubLogic*

"My wife wouldn't let me fly an ultra-lite, so this is the closest thing I can get to the real thrill of flying."

Tom Snyder *(The Other Side; Snooper Troops I, II; Bannercatch; In Search of the Most Amazing Thing; Run for the Money; Halley Project; Search Series I, II, III, IV, V; Rock'n'Rhythm; Fraction Fever; Navigation)*
Castle Wolfenstein, *Muse*

"This will probably destroy my reputation, but this is the game I have played the most hours with the most fun. I bring a friend over, get a couple of sixpacks, and get real comfortable in front of the computer. I handle the character's legs, while my friend controls the hands. We play the game in tandem. Believe it or not, we have never gotten out of the castle! Yet we get so involved, yelling and shouting, that we have a fantastic time. I love games that allow this kind of social interaction."

Ann Westfall *(Archon; Adept)*
Ali Baba, *Quality*

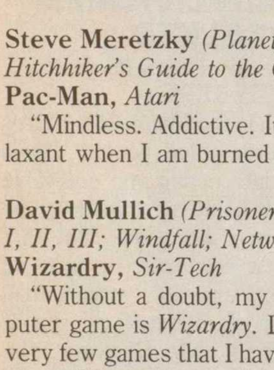
"Always get a group of friends together to play this game. The interaction and sociability between the players is what makes the program so much fun."

Robert Woodhead *(Wizardry I, II, III; Wiziprint; Galactic Attack)*
Loderunner, *Broderbund*

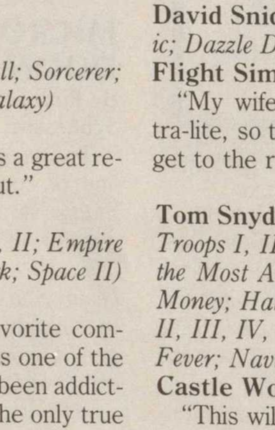
"Great graphics. The game really kept me riveted to the screen and coming back for more. The seemingly endless varieties of puzzles delighted me."

Will Wright *(Raid on Bungling Bay)*
M.U.L.E., *Electronic Arts*

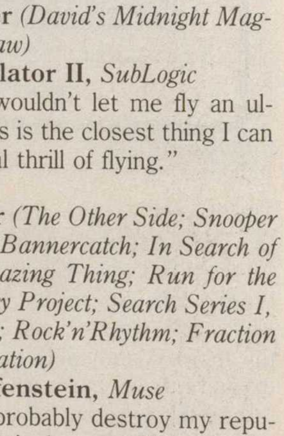
"The pace of the game is terrific. The factors of play are not immediately obvious, unlike most games. It took a few weeks before I started to understand how best to play *M.U.L.E.* Marvelous depth and interaction."



TOM CARBONE



JORDAN MECHNER



BILL LESLIE

ET, PHONE US...COLLECT

Continued from page 41

procedure for forming a radio spectrum, by determining the amount of energy present at each of a great many frequencies.

We're not home yet though. This spectrum then goes through still another filter, which sets a threshold for noise. The threshold is high enough that as much as 99.9 percent of the received noise will be rejected and ignored. The system generates such filtered radio spectra, one each second. The question is: are any of these spectral lines with narrow but intense features signals from the Great Beyond?

To find out, the signal analyzer's computer compares the latest spectrum to those stored in memory from previous seconds. It makes the comparisons in real time. First it asks: Is there a signal in any bin? If so, flag the bins that have them. Now, for each of the flagged bins, look at the two adjacent bins from the spectrum of the previous second, the four adjacent bins from two seconds earlier, and so on up to the 500 closest bins from 250 seconds earlier.

In any of these bins examined for comparison, was there also a signal? If so, take note of how long ago and at what offset in frequency. Then, make a prediction: A new signal will be seen the same length of time in the future, in a bin

> The signal analyzer picks up 'chirps'—like those emitted from TV broadcasts. At interstellar distances no one could watch *I Love Lucy*, but they might detect the carrier signal.

with an equal but opposite frequency offset. Look for that signal. If it is there, make a new prediction, based on what now are data from three such blips. If it finds pulses in predicted positions enough times, the computer will determine that it has a real pulse pattern, and will record this fact.

This is specifically how the NASA system looks for pulsed signals. Even if the pulses are very widely spaced—up to 250 seconds apart—the system will catch them. The combination of ultra-narrow-band signals and intermittent pulsing means that the aliens could be transmitting with broadcast energies of as little as a megawatt, yet would so concentrate this energy that it would be picked up and identified at distances of hundreds of light-years. Such signals typically drift in frequency, owing to the Doppler effect as the earth and the transmitting planet both rotate. The system can cope with a drift rate of as much as one hertz per second. (By contrast, for observations at 1420 megahertz—the frequency of the hydrogen line—the drift due to earth's rotation alone is never more than 0.16 hertz per second.)

This signal analyzer can also pick up "chirps": continuous-wave signals that drift in frequency. An example of a chirp would be an extraterrestrial view of one of our TV stations. At interstellar distances no one could watch *I Love Lucy*; but they might detect the carrier signal. It would show up as a narrowband signal with width of only 0.1 hertz, drifting in frequency at 0.16 hertz per second or less. If similar signals are coming our way, the NASA system could pick them up.

This system exists today only in experimental form, as a set of printed-circuit boards linked to a VAX 11/750 computer. This is much slower than the projected system planned for 1988 and can handle only 74,000 channels in real time, compared to the 10 million planned for 1988. The experimental version is currently being tested at the Jet Propulsion Laboratory's Goldstone tracking station. There it has detected signals from the Pioneer 10 and 11 spacecraft, which are out near the edge of the solar system.

The final version will be built at Stanford University, where Ivan Linscott is preparing to design the necessary microchips. These chips will implement the Goldstone methods with massive parallel processing, and will be fast enough to handle the full 10 million channels. Stanford itself will manufacture the chips, in its new Center for Integrated Systems, CMOS. And Linscott hopes to do even more: he wants to process 100 million channels. "I think the technology is there," he says. "It doesn't really make sense to go to VLSI for 10 million; you could do that with a few racks of electronics. There is an opportunity to do something more significant." After all, the more bandwidth that can be searched, the better is the chance of picking up a signal.

Once this signal analyzer is ready, Barney Oliver expects it to run on a number of the world's great radio telescopes: Arecibo, Parkes, Tidbinbilla, Green Bank, and others. It will serve both for all-sky searches, being swept rapidly across broad regions of space, and for focused searches in which the telescope will point for some period of time at a single star. In this, the signal analyzer will act as a new astronomical instrument, the first uses of which are sufficiently significant to merit time on these world-class facilities.

Already, however, the Harvard radio astronomer Paul Horowitz is pushing forward with an all-sky search using similar equipment. His search is not a NASA project; its funds come from The Planetary Society, an organization of space buffs founded by Carl Sagan. These funds have served to refurbish the 84-foot Oak Ridge radio telescope in the town of Harvard, Massachusetts, which Horowitz is now devoting to full-time SETI work.

Project Sentinel—the program name—features two 65,536-channel analyzers, with a width of 0.03 hertz each. These narrow frequency bins give improved sensitivity, at the cost of searchable bandwidth; the Sentinel system today covers only 4 kilohertz, compared to the 10 or even 100 megahertz to be scanned by the NASA analyzer. Help is on the way, though. Later this year Horowitz will put in a new system, capable of handling 8.4 million channels, each with 0.05 hertz width. With the resulting 420 kilohertz of searchable bandwidth, in Horowitz's words, "we're starting to be serious." Has he seen anything yet? "No."

"NASA is doing a much fancier thing," he admits. He uses bandpass filters built by Stanford's Linscott, as well as a fast-Fourier-transform program; but he has no algorithms operating on-line to detect pulses or chirps. His system will pick up an alien signal only if it is frequency-compensated, adjusted to take out the Doppler shift due to the rotation of the transmitting planet. Still, this approach at least simplifies his software, and makes it easy to reject unwanted interference: "Terrestrial signals don't chirp, or they don't have the right chirp."

Another search is currently under way at Ohio State University; it has been operating since 1975, using a 50-channel analyzer. Its radio telescope recently was in danger of being torn down to make room for a golf course, but sanity prevailed and the facility was spared. It, too, has seen nothing. But at Berkeley's Space Sciences Lab, Don Wertheimer has launched the Serendip project. Its aim is to make SETI searches a routine part of everyday work with radio telescopes.

Wertheimer is currently building an analyzer with 64K of channels, to be used parasitically. This means that it would sit within the lab of a radio telescope and operate untended, its computer busily looking through the stream of data for a signal. It would work away unobtrusively—but if it saw something, it would let the astronomers know. "Parasitic searches in the past have not been useful," says Stanford's Linscott. But if the instrument can be sufficiently compact and out of the way, any lab might welcome it, as an inexpensive way to get more out of its data. Even amateur radio astronomers could buy them.

The ultimate future of SETI, then, might lie in such instruments, which would use the sort of technology being developed in NASA's program. By the end of the century, all the world's radio telescopes could be permanent SETI observatories. Hobbyists, with their modest but numerous dishes on rooftops and in backyards, could also join in. (A handful of such amateurs have already begun such searches.) In a few years it would become possible with this technology to get answers to the basic question: Is anyone out there signaling to us?

IF YR COMPTR CN RD THS

Continued from page 27

Spinnaker's head of product development, Seth Godin, oversees the Telarium line of graphic adventures.

Freudian does, it just turns your words around. A conventional parser gives up if it doesn't understand a command, and may or may not tell you which word is not in its vocabulary. The new Imagic parser doesn't stop there, but searches the command for various keywords. "We wrote sentences that were appropriate for the keywords," which the program displays rather than repeating the phrase 'I don't understand that.' Currently completing a novel, Peter Golden wrote short fiction for ten years before enlisting in Imagic's "adventure army" and feels that "the parsing must be more intelligent if interactive fiction is to ever reach the mass market—if the art is to be pushed to its limit."

The gifted parser in the Synapse series of Electronic Novels works along the same lines. According to Richard Sanford, "No parser can handle the language and resolve *all* ambiguities, so we came up with something else, a keyword concept based on certain built-in filters. We do as much of that [conventional parsing] as possible, but we may only have to parse part of a command and leave the rest of the filters. They look to see how a phrase involving a keyword object might tend to have meaning in this fictional world (the context of the game)." In *Mindwheel* and *Essex*, the first games in the series, this keyword approach enables the reader/player to converse with other characters in ways no other adventure has ever permitted. You can elicit reasonable responses to questions like: "Thug, what lies east of here?" for example, or "Singer, how can you help me?" "There are aspects of the *Eliza* approach that we've used as part of an eclectic combination of tools," Sanford continues, "and we couldn't do it without BTZ, which is responsible for codifying and assembling—pairing nouns with verbs, checking for prepositions and conditional modifiers such as adjectives and adverbs." Sanford says "the parser is still being refined, and will continue to be refined. Right now, there are certain ambiguities with combinations in compound sentences. We're cleaning up things like this and trying to make it even smoother."

INFOCOM—ON THE DEFENSIVE FOR THE FIRST TIME?

"You call that parsing?" snorts Marc Blank, chief architect of Infocom's parser and co-author of ZIL, the first adventure-specific language. He dubs Synapse's innovation "the Big Lie parser: it hardly understands anything, but it fools you into thinking it does." Blank dismisses the keyword approach as just more "bells and whistles, like adding graphics to adventures...it's superficially a slick-looking thing that isn't even close to ours, though it's definitely better than Spinnaker's, for instance." (Could he possibly be rankled at rumors that BTZ, the Synapse language, is an acronym for "Better Than *Zork*"? After all, Synapse is the first and only company to have been seen as a challenge to Infocom's dominance.)

Asking Marc Blank about Infocom's plans for its parser is like asking the CIA about its plans for Nicaragua—he refuses to part with a single clue, Invisi or otherwise. Denying plans to completely overhaul their parser in light of Synapse's innovative technique ("We saw

In the beginning was the word

In the Fifties, artificial intelligence research at MIT focused on natural language systems that would enable computers to manipulate human knowledge and information. Applications dealt with things like language translation. The heart of the process was the parser, a sub-routine that resolved a sentence like "Nyet, comrade" into its grammatical parts so another part of the program could quickly convert it into "No way, Jose." Not so coincidentally, William Crowther, who wrote the first adventure, *Adventure,* and the *Zork* crew studied at MIT.

Crowther's two-word parser of the late '60s was outpaced by *Zork*'s full-sentence parser in 1977, which introduced commands ("get the sword then kill the messenger") to adventure games. Until recently, Infocom had a virtual monopoly on the full-sentence parser. Now, however, it is becoming as ubiquitous as rocks in a cave. It's unrealistic to rate parsers side-by-side on a purely technical basis, for each must be considered in the context of the game. "If it's not important for a specific game to understand adjectives or adverbs," Imagic's Peter Golden amplifies, "then there's no need for the parser to understand them." It must, however, be able to identify and deal with adjectives, adverbs, prepositions and indirect objects, in order to truly qualify as a full-sentence parser: "look *in* the red box" and "*carefully* give the box to the *skinhead*." In this area, Infocom's parser is still top gun—although it apparently lacks the potential for character interaction inherent in the Synapse system.

Another important consideration is the size of a game's vocabulary: the more words in the game's vocabulary, the fewer "synonym searches" the player will have to conduct to find the right words to solve a particular puzzle. So even though current adventure games already have larger vocabularies than a New York cabbie, the heat is on to expand them even more. *King's Quest II,* with its 500-word dictionary, surpasses the original Sierra game by 150 words. Penguin's 1981 *Transylvania* has a 300-word vocabulary, but the 1985 sequel will understand 800-1,000 words. Activision's *Mindshadow* has a vocabulary in the neighborhood of 500 words, Imagic's *Holmes* knows 2,000, while Synapse's Electronic Novels range from 1,200-1,500 words.

Infocom games vary from title to title and the 1,000-word vocabulary of *Sorcerer* is the largest so far. (Blank claims he could cram in 10,000 if necessary.) Telarium's *DragonWorld* has a vocabulary of around 600 words, but Seth Godin says that "if a game calls for a 1,000-word vocabulary, we'll give it one." Indeed, the only technical restriction to the size of a game's vocabulary is the amount of a computer's RAM, and with 128K fast becoming the standard for home computers and 512K on the horizon, parsers of the future may be able to "thumb through" an unabridged dictionary, and learn new words and phrases while you play.

nothing there that looked like it was worth emulating"), Blank says that "we're making a lot of small changes that add up. We make improvements for every game to meet the requirements of the game, and there have been improvements that we've made over time that we've fitted back into all the old games. The current *Zork I* has a new parser with a larger vocabulary and improvements in the variety of sentences it can understand. *Hitchhiker's* and *Cutthroats* had a lot of new features." Both feature much more character interaction than earlier Infocom games, a key reason for the changes. "In *Hitchhiker's* Bugblatter Beast problem," Blank points out, "the parser understood many, many different ways of trying to solve that puzzle."

And while you wrack your brain trying to unravel puzzles like that one, combat-fatigued programmers across America are building better parsers that will make it easier and more fun for you to do so. The intensity of war always produces our most dramatic technological advances, and the Parser War is no different. So as Infocom and Synapse cross swords in the all-text arena and a half-dozen other outfits continue to clash in the province of graphic games, the only sure winner will be you, the adventurer.

MUSEUM OF MONITOR ART

Continued from page 47

dreams: Scenes from a Nightmare (1985) is featured at the SIGGRAPH '85 Art Show in San Francisco, dislikes not being able to touch the canvas, and thinks that the small screens, slides and prints limit the artist. "I'm waiting for someone to come up with an inexpensive way to make huge blowups that have sharp images," Lindquist says. *Daydreams,* a half-hour film combining computer generated animation, painted sequences and live action, explores the relationship between art and people's lives. "I'm trying to make statements about art where it's not just hanging on a wall being inert. I want it to interact with people's minds to see how it pushes and shoves and leads them down blind alleys," Lindquist says.

Elaine Cohen, a Canadian artist, feels some compromises are made when using a computer. "There is a lack of texture, and it's hard to be spontaneous. It's a step-by-step process linked with sequential ideas,"says Cohen. In generating *Portrait* (1985), another entry in the SIGGRAPH '85 show, Cohen experimented with the different functions—scaling, interpolating, and rotating—to portray people's attitudes about fashion. "I was poking fun at how people use fashion as a mask to cover their fear," Cohen says. *Portrait* was generated on a Dicomed 38, and printed from a slide.

Steve Miller doesn't find the computer fully satisfactory for his finished work. He mixes computers and traditional methods. "I use the computer as a starting point to do compositional things that I don't want to spend the time doing by hand," Miller says. *Average Landscape #2* (1984), an oil on canvas, was shaped on Dubner and Chron computers. Through aesthetically pleasing, the result has a paint-by-numbers aura about it. He took the image of a waterfall and broke it down electronically—pulling out segments of the image and increasing modules. The left-hand side, a straight read of the right, transforms the painting's impressionistic quality into an abstract pixelated expressionism. The 72" x 144" canvas sells for $10,000.

Other computer artists, however, don't bother with either the technical aspects of how a system functions or working an electronic expression into their pieces. They collaborate with programmers to take advantage of the computers capabilities and view the machine as just another tool like the brush, chisel, or camera.

Mark Dearing's *Apartment Dwellers* (1985) looks more like acrylic or heavy watercolor than a screen shot. Dearing 31, was invited by Digital Images Inc. to use their Digital Graphics System, which consists of a Compupro microcomputer, the CAT palette program, frame buffers, and a video digitizer. While initially afflicted with technophobia, Dearing was surprised by the results. "I thought the computer would stereotype my work, but the personality was retained. It looks more like a painting than a video image because of the glazing effect," Dearing says. *Apartment Dwellers* is also showing at SIGGRAPH '85. Dearing, who describes himself as a "Mr. Mom," works on his art at home in California.

Because the greatest potential for manipulating an image exists on mainframe computers, most artists have to be sponsored by large corporations, foundations or universities to do their work. Today's computer artist has to be part diplomat to get access—much like artists during the Renaissance petitioning the lords of city-states for sponsorship.

J. Michael O'Rourke's *Cranberry Blue Slucid* (1984) was produced using several mainframes, the VAX 11-780s, at the New York Institute of Technology Computer Graphics Lab. The three-dimensional quality of O'Rourke's work jumps out at you from a distance giving an illusion of sculpture. The subtle shadows and complex spatial symmetry of the different geometric forms give it a surrealist edge.

Some artists are finding microcomputers more than satisfactory for their work. William C. Bramble, 29, uses an Apple II, a video digitizer and a paint system to create his technically expressive rough dot matrix images. "Many computer artists feel they have to work on high resolution systems, but I find the Apple very energetic," Bramble says. The playful and subtly erotic *Statica* (1985) conveys an electronic interaction appropriate for the new wave generation. Bramble, who explores male-female relationships in many of his pieces, says *Statica* is "derivative of early computer vector images contrasted against a colorful moving image."

Bramble says he had no trouble in making the transition from traditional media to the computer. "When I'm looking at a television monitor and drawing on the screen, that's my environment. It's very real to me. I grew up on television watching the cartoons 'Gigantor' and 'Speed Racer'—imagining that what was going on inside the television was my environment."

Where is computer art going? Interactive media seems to be the most exciting possibility. Tom Leeser sees micro computers as having enormous potential for creating conceptual narratives with sophisticated images. "It's programming as art. Programming is the aesthetic object. With micros becoming more widespread, people will be exchanging floppies. It will be like mail art."

Leeser's humorous *Venus Talking* (1983) seems to actually speak to you. Generated on a PDP-1134 mainframe at Digital Effects Inc., Leeser used that company's custom software, the *Video Palette-4* system. "There's a real expressive angle to computers," he says. Leeser doesn't consider himself a computer technician. "A lot of computer art has been done in an aesthetic vacuum by purely technical people. It's very segregated from the art world. What artists are doing may not be of the highest technical nature, but it's more aesthetic."

Despite the Bronx show, many New York museums don't consider computer generated art a genre unto itself. The Museum of Modern Art has many pieces that have incorporated computers in their photography, video and architecture collections, but they don't have a department devoted to the medium. Lucinda Furlong, an associate curator at the Whitney, says there are no immediate or even long range plans to mount a computer art show. "We tend not to isolate the computer aspect of it, though we do incorporate pieces done on and with computers into other shows." Furlong compares the development of computer art to that of photography. "People asked, 'How can it be art when there is mechanized production?' They rejected photography because they felt threatened, but all talk of this ceased as soon as they figured out a way to market the new art form."

Will computer art find a market? Elizabeth Van Dusin runs Beyond the Horizons, a gallery in Pittsburgh, PA devoted exclusively to computer art. Van Dusin finds sales among high tech corporations to be good, but she says, "the response among individual art collectors has been cool. They don't like the aesthetic, but it's a personal thing. Some people prefer oil over acrylic."

Cynthia Goodman is quite optimistic about the upcoming Everson show, which she bills as "the first comprehensive survey of computer assisted art including many pieces of historical importance, as well as current works." The show will go on national tour after the exhibition in Syracuse, NY in the fall, 1986. Goodman thinks acceptance by the traditional art world is close. "Hopefully, as art is produced using the computer in ever increasing numbers, the computer is not going to be the thrust of the issue. It will be judged on its aesthetic merits."

BARGAIN BASEMENT

Continued from page 50

open your software collection to a whole new electronic library, stored on computer bulletin boards across the country. In fact, swapping public domain software was an early impetus for bulletin board systems. Most boards still feature a public domain software section.

Free Software for the IBM PC, by Bertram Gader and Manuel V. Nodar (Warner Books, 1984, $10.95) describes many of the public domain programs you'll find pinned up on electronic bulletin boards around the country. Noting that a computer owner may spend as much on software as on hardware, the authors offer telephone numbers of 45 bulletin boards indexed by programs featured, including a thick chapter on games and where you can call to find them.

A Sunnyvale, CA board run by high school student Edward Svoboda specializes in distributing CP/M programs for Apple, Osborne, IBM, and CompuPro computers. The Silicon Valley Interchange RCP/M operates around the clock and features a 40-megabyte hard disk with more than 4,500 files. It is a subscription system only, and a $25 donation is requested for membership. Modem number is (408) 732-9190.

If you want to spend more money, check out the machine-specific bulletin boards on commercial electronic data bases such as CompuServe and The Source. They often have particularly good public domain software posted—and the on-line users' groups, with paid system operators, are also a source of support if you have questions about apparent bugs.

> With public domain programs, remember that quantity doesn't always mean quality. You have to kiss a lot of frogs before you find a prince.

But back to the real source of the software itself: the anonymous programmer who shares his talents with the world. Why just give it away? Ah, but don't let the price fool you. Some of those public domain programs were experiments by the designer; a personal challenge to try to clone a favorite arcade game or improve on it; to try out what they learned in Famous Computer Programmers' School.

"I consider myself a hobbyist," said Russ McCaffrey of Torrance, CA, who manages the 11,000-title software library of the Original Apple Core. He programs for fun, and contributes his efforts to the library. About half the titles are games. "They vary from the most simplistic of *Pong* games to the most intricate flight simulation programs," McCaffrey said. His picks "the classics": the original *Breakout*, Apple *Pong* and a favorite Star Trek scenario.

Most users' groups charge a small fee for public domain disks as a club fundraiser. But buying nearly-free games is not out of the question either. An increasing amount of public domain software is slipping into the "shareware" category, that capitalist category a step or two behind actual commercialization but a notch beyond giving it away, no strings attached. Sometimes a program will boot up with a message along with the title screen: if you like this program, want to support its author's efforts or reward him for your hours of enjoyment, send a few bucks to this address. In return, you'll usually get told about any updates or other games from the same source.

The shareware concept has been used very successfully with business programs, and now their success is being eyed by some game designers. John D. Price of PC Research in Colts Neck, NJ, asks a voluntary payment for enthusiasts of his three-dimensional *Pac-Man* imitation, *3-Demon*. Kevin Bales of Atlanta, GA, suggests a $10 contribution from game players who enjoy his Freeware Games, including *Castle Adventure*, a treasure-seeker's adventure game with both text and graphics.

Just because it's cheap doesn't mean it's junk. *Wizardry* designer Robert J. Woodhead, with a commercial success behind him, also wrote and released into the public domain a version of the game *Othello* called *Reversi*. He asks users to make a donation to a fund for the blind.

Shareware has another advantage: you know where to find the author/programmer. While the price is right with public domain software, you do get ONLY what you "pay" for. Anonymity of source is a pain when you need a resource to find out why that nifty-looking game your friend showed you that ran fine on his IBM PC gets to an interesting part of the maze and then stops dead on your Leading Edge PC, for example. You can't exactly call the company for support or get your money back.

Support is one of the strong points of the PC Software Interest Group (PC-SIG) in Sunnyvale, Calif., which sells a selection of 500 disks, each containing about five to 10 public domain and user-supported programs for the IBM PC and compatibles. About 15 of its disks are strictly games, says owner Richard Peterson. One disk features the "Best of the Games;" another features arcade imitations.

"We help a lot of people over the telephone," he said. Sometimes users fill him in on which games run on which IBM PC clones. The PCjr, while "a great game machine, doesn't always run games written for its elder brother," Peterson says. Several games use graphics designed from text characters, so even a computer without a graphics adapter can run them, he added.

"The nice thing about public domain software is the source code is right there. You can look at it and rework it if the game doesn't run on your system," Peterson added. Technical support adviser Richard Watson said he takes questions from subscribers and sometimes tries to track down authors.

Organizations like Peterson's are springing up across the country. Many of them draw on and combine the resources of users' groups to offer a bigger selection of software to a wider number of users.

Public Domain of West Milton, Ohio, boasts "over 11,000,000 bytes" of public domain programs in its collection. Its library includes nearly 2,000 games for Commodore, Apple and Radio Shack computers, sold on tape or disk for as little as $10. Collections of programs, sorted by type, are available for varying prices. A yearly contest helps stock its shelves. Its newsletters also feature short programs that can be typed in by users.

A wealth of public domain software for the Commodore 64 is available from 64 Gold in San Francisco, which features utility programs and educational software as well as games. Pandora Software of Clearfield, Utah, lists more than 4,000 public domain programs for Apple computers (more than games, of course, but with a healthy number of entertainment programs) in its new catalog. Some public domain software clearinghouses specialize in selections for certain operating systems; others offer a variety.

It could be argued that a machine has really found a place in the computer-using public's heart when its public domain software selection soars. A recent example is Apple Computers' Macintosh. Despite the company's continuing efforts to promote the Mac as a business machine, some worthwhile public domain software was an early arrival. Again, users' groups are at the forefront. Washington Apple Pi (WAP), of Bethesda, MD, one of the largest Apple groups, now supports a Macintosh Special Interest Group with its own newsletter and hotline.

A particularly innovative, if still fledgling, source of public domain software is Sofcast, a Redmond, WA firm that distributes public domain software over radio waves in cooperation with several stations. A receiver connects radio to computer, and the radio station transmits a program in seconds at 4800 baud. So far, distribution has been a gimmick for a couple of Seattle-area radio stations, said Michael Darland, Sofcast president. The receiver is $70, so the system isn't entirely free. But it's novel, and he says radio stations in Morgantown, NJ and Portland, Maine have expressed interest in occasionally sending software over the air.

Besides your local users' group and on-line services, you can always turn to the old-fashioned printed page for public domain software sources. Some machine-specific magazines print short programs you can type into your computer. A host of books on public domain software are starting to emerge.

The book that has been described as "the definitive source" of sources of public domain software, Alfred Glossbrenner's *How to Get Free Software* (St. Martin's Press, 1984, $14.95) claims there are more than 3,000 public domain programs out there for CP/M operating systems, thousands of free Apple programs, and about 2,500 for MS-DOS machines such as the IBM PC and compatibles. The leader of the pack, not unexpectedly, is the Commodore computer line, which has "at least 4,000" public domain games in wait for you.

An even more voluminous source is Robert A. Froehlich's *Free Software Catalog and Directory* (Crown Publishers, 1984, $9.95), which overflows with tips, lists and descriptions of where to find software for computers that run the CP/M operating system, including Atari, Apple, Commodore, Digital Equipment, IBM PC and compatibles. The tome features programs you can type in yourself, as well as directories of public domain programs available from other various sources.

One new user-friendly entry in the free software book market is *Free Software* (Baen, 1985, $9.95). Tony Bove, Cheryl Rhodes and Kelly Smith not only list sources for CP/M programs, but they provide documentation on how to use many of the more complicated public domain word processing, spreadsheet, and utility programs.

But do you really get what you pay for? "Some of it is very, very good," says Glossbrenner in his thick listing of public domain programs. "Some of it is fair to middling, and some of it is not likely to be of use." But, he adds: "One could say the same about the current crop of movies, record albums, and books. The difference is that no one is asking you to pay money for public domain software."

More Software Sources

New York MacUser's Group, P.O. Box 6686, Yorkville Station, New York, NY 10128. $32/year membership, includes newsletter updating programs available; $8/disk.

Silicon Valley Computer Society, 2464 El Camino Real - Suite 190, Santa Clara, CA 95051. $30/year membership, $6/each for library disks, catalog $4.

The New York Amateur Computer Club, P.O. Box 106 Church Street Station, New York, NY 10008. Memberships $15/year, includes newsletter; software library catalog $10.

Big Red Apple Club, 1301 N. 19th St., Norfolk, NE 68701. $12/year membership; free catalogs of programs available. Disk of 25-30 programs, $2.50 or $1 if you send a blank disk.

Boston Computer Society, Three Center Plaza, Boston, MA 02108

Silicon Valley Interchange RCP/M, registration $25. P.O. Box 532 Cupertino, CA 95015

Antic Public Domain Library (Atari), call for catalog or to order. (800) 227-1617; in California, (800) 772-3545, ext. 133.

Public Domain Software Copying Corp., 33 Gold St., New York, NY 10038. Disks $8 each or request catalog.

Original Apple Corps, 4038 W. 183rd St., Torrence, CA 90504. $30/year.

FOG (First Osborne Group), P.O. Box 3474, Daly City, CA 94015-0474

Mypro Inc., P.O. Box 4463, Anaheim, CA 92801

PC-SIG, 1030 E. Duane, Suite J., Sunnyvale, CA 94086

Dynacomp, Inc., 1064 Gravel Road, Webster, NY 14580

Pandora Software, P.O. Box 55, Clearfield, UT 84015. (Apple) Write for catalog.

YOU HAVE UNTIL 2061

Continued from page 39

of your target planet can be tough: your Planet/Moon Finder won't light up and give your real distance from your target until you're looking dead at the target and it is within a certain visible range. These ranges aren't printed anywhere, but they're obviously determined by the size and brightness of the planet you're headed for. If it happens to be the huge and bright Jupiter, and your hyperspace travel is reasonably accurate, upon popping out of hyperspace you'll usually find it quickly in the starfields around you. But if it's Pluto, you may find yourself searching and researching for it—while being only a few thousand kilometers beyond viewing range.

That challenge can be even rougher when looking for a moon, oddly enough. Finding Mars is easy enough: it's about the size of Earth, and not so far away that you have to travel billions of kilometers and do lots of backtracking. However, its two moons—Phobos and Deimos—are tiny; anywhere else in the solar system, they'd probably be classed as wandering asteroids. They also orbit Mars at incredible speed and at odd altitudes; those speeds and orbital characteristics are exactly mimicked by *The Halley Project,* so if you don't know exactly where to look for them, you may never find them until you crash into them—and crashing into anything means a month of hospital time added to your mission elapsed time.

On top of those challenges, *The Halley Project* adds another: eclipses. Only one side of the planets and moons is illuminated at any one time, depending on how they face the sun. Eclipses happen because a body moves between one body and another that illuminates it. Let your target body get between you and the sun, and you get thrown into an eclipse; the target body suddenly disappears, now visible only as it occults (or covers up) individual stars of the constellations in the background. If you're within range and facing it when that happens, your Finder will still indicate its position—but if you're not, or moving at an angle to it so that the Finder eventually moves away from it, you may find yourself lost in space. Of course, you can also manufacture your own little eclipses to help you locate moons: stand off the bright side of Mars a few thousands of miles, and eventually you'll see Phobos.

Once you zero in on your target, *Halley* throws one more wrinkle at you: landing authorization. You'll have to orbit the body for a while at under 100,000 miles until the local space authorities give you permission to land. Permission is signalled by a beeping tone and a blinking Finder indicator, and fairly easy to get. But while there are no gravitational phenomena in the game to complicate orbiting the target, you'll have to make constant course corrections at low power to keep from spinning away out of range. Once you get the green light, though, you're home free: engage the automatic landing system, and you'll be carried down to a soft landing, a look at the surface, and the name of your next destination.

Well...not always the name, exactly. At the very beginning, and more and more as your rank progresses, the "name" of your next destination is given to you as a hint, a category, or other vague selection that demands that you really know something about the individual bodies of the solar system. Happen to know of a planet colder than Uranus? If so, how about a moon larger than Mercury? Or a planet smaller than a moon? Where is Almathea? Which planet does Iapetus orbit? And if you can answer that—even with the aid of a book—are you certain you know exactly where to find it relative to the other satellites you'll see circling Saturn? Some hint destinations will have more than one solution, depending on where you happen to have landed last, and which one helps you make the fastest overall time.

The Halley Project does a lot of things very well. Foremost is the realism of the simulation, which is not only textbook accurate, but really gets across a lot of the feeling of what actual space travel—often, to planets humans haven't visited in person yet—might be like. Drifting lazily a few hundred thousand kilometers from the face of cold Uranus, watching the planet's crazy collection of moons—all with violently different speeds and directions—whizzing around it like a pack of racing horses, against a backdrop of empty black and fixed stars, I found myself recalling *2001: A Space Odyssey.*

Of course, the program doesn't do everything well. The graphic representations of the planets fall short of realism. Saturn, (not to mention Uranus and Jupiter) has no rings here; the dozen or more moons around both Jupiter and Saturn have been limited to a total of five for each planet (although the designers have used very good judgement in picking the five most interesting of each group). From space, all the planets have had to be rendered as simple, solid-colored orbs, with no apparent surface features. The designers blame that on the limitations of current microcomputer technology, and I believe them. Still, the loss of those extra details is mitigated somewhat by the accurate (if postcard-like) shots of planetary surfaces once you've landed, and by the detail of relative sizes. There's nothing quite like the feeling of disaster looming up all around you when you have to approach within a few thousand kilometers of gargantuan Jupiter just to land on tiny Almathea.

There's also some of the best documentation I've seen to go with it: A very readable and instantly comprehensible guide to game mechanics that might be a model for many other games, with plenty of illustrations, a chart to fill out as you explore, which can be very useful in bettering your time on certain missions, and some of the most coherent and concise explanations of difficult astronomical concepts that I have seen in any publication anywhere. There's a reference bibliography which, although selected especially to aid with playing the game, contains at least three titles that ought to be in any high-school library, or on the bookshelf in any home with adults or kids interested in the universe (it even mentions the two best general-audience periodicals in the field, gives two non-fiction titles dealing specifically with space travel, and the name of at least one author who had a lot to do with inspiring human beings to get serious about exploring space: Arthur C. Clarke). There are instructions on how to find and identify the stars of the ecliptic on your own in the night sky (another masterpiece of compressed explanation).

Finally, the *Halley Project* doesn't end when you've completed all 10 missions. Upon doing so, players will be given a special code to be added to their filled-out registration cards, and returned to Mindscape. Later, they'll receive information about a critical, challenging 11th mission, designed to coincide with the approach of Halley to Earth, in which you can compete with everyone else who has worked his way through the game.

This is an inspiring piece of work, and I'm convinced there will be plenty of people inspired to go further than any game could possibly go in exploring the subject it deals with. Along with the reference bibliography in *The Halley Project,* and for serious amateur observers of Halley, there's one more piece of software I'd like to recommend. *Halley's Comet on Your Home Computer* (available by mail from S&T Software Service, American Only, 13361 Frati Lane, Sebastopol, CA 95472) by Eric Burgess, F.R.A.S., is a collection of six special Apple utilities, arranged as a single menu-driven program, that not only covers the history of Halley's Comet and its appearance, but allows you to plot its path across the heavens, shows you how and where to find it in the night sky anywhere in the world for any date and time during its current apparition, and will graphically demonstrate the comet's path through the solar system. With that kind of background, and some skywatching under your belt, you may actually want to become part of International Halley Watch.

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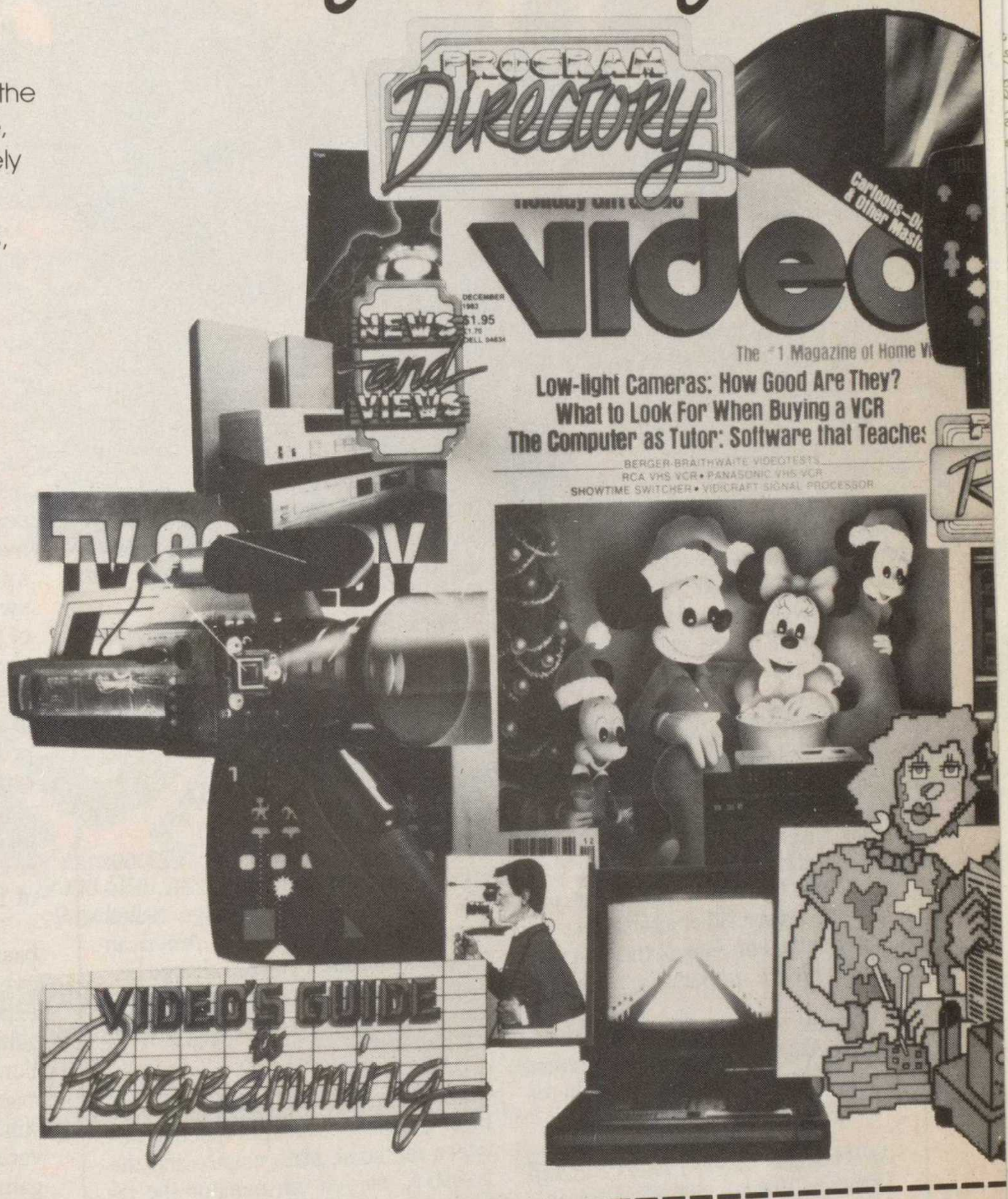
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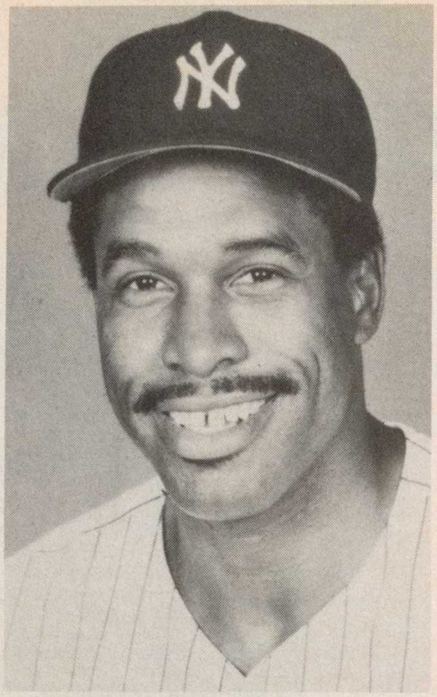
BOOT FOR THE HOME TEAM

Continued from page 35

awkward, especially when compared with the more realistic stance diagrams in the instruction booklet. Winfield sidesteps this high, hard criticism by suggesting that "the stances of some major-leaguers are even crazier. People say to me 'how do you hit, man, you're so far from the plate.' Or look at a guy like Dan Ford [Baltimore Orioles outfielder]. He practically has his back to the pitcher, yet he's successful."

How about the curves delivered by the animated pitchers (Fast Eddie, Curving Irving and Breaking Billy make up the rotation) in the "hitting practice" section? If you decide you want to take your computerized cuts at one of these hurlers using the program's major-league level, you'll find their throws have a break so sharp they'd make the Mets' Dwight Gooden envious. "Trying to adapt what you see on the field to a computer screen was very difficult," explains Winfield. "Like figuring out distances; how much a curve or screwball is going to break on the way to the plate. The ball travels 60 feet, six inches, but



the computer screen is only 12 inches. All in all, I was very impressed with how the programmers put the whole thing together."

But as impressive as the program is on an educational level, it would be as much fun as watching a rain delay if it wasn't for "Slugfest," a sort of video game version of those endearing old pinball baseball games. Here's where Dave hopes you will apply everything he has explained in the tutorial section. "Slugfest" is like taking computerized batting practice, only don't expect any one of the eight computer pitchers to serve up room service fastballs. You and up to three opponents can bat right- or left-handed against hurlers programmed to throw something like, among others, Nolan Ryan, Fernando Valenzuela, Phil Niekro, and Steve Carlton (who here goes by the puzzling name of "Clockwork Grits"). The object is to reach the seats of your selected stadium (the dimensions of four parks are programmed in, including Yankee Stadium—natch—and Wrigley Field—no, the ball doesn't get lost in the ivy-covered wall. In a wonderful bit of comical programming, a bird flies across the screen occasionally to sit on Winfield's bat, a joke on last season's incident where Dave accidently killed a seagull with a ball in Toronto). You connect with the ball by choosing—with split-second timing—the proper swing—high, level, or low—for the type of pitch thrown. Here again, you have a choice as to the degree of difficulty, and the computer will keep game-by-game or cumulative hitting statistics. If you're proficient enough to produce Winfield-type stats, the program manager will automatically call for a reliever. There's no Bruce Sutter, but our scouting report reveals that the righthander called "Balls of Fire" has Goose Gossage stuff.

"I think 'Slugfest' is a step up from the basic computer game in terms of hand-eye coordination," says Winfield, who exposed his Yankee teammates to the game at a recent dinner party in New York. "You can't treat this like a pinball machine that you can tilt on an angle and win all the time. There are too many variables. In fact, the idea here is for the game to *beat* you, otherwise you don't learn anything from it."

And 'learning' is the operative word here, for all students of baseball, from kids playing their first competitive games to coaches trying to pass major-league principles on to their young charges. As the instructon booklet's preface states, "Our goal is to stimulate your ability to respond...so you will have an edge over your opponent. If you know what to expect, if you know what the odds are, you will be a leg up." Does *Batter Up* achieve those lofty ambitions? "Well, it may not improve the odds of your making the major-leagues," says Winfield, who hopes soon to put his theories between hard covers for sale in bookstores, "but at least you'll be taking a step in the right direction."

Other Players On the Program

Star League Baseball (Gamestar); $31.95; disk or cassette for Atari, C-64 and Apple II series. Choose your team and play against either a human or computer opponent. One of the best programs on the market.

Computer Baseball (Strategic Simulations); $39.95; IBM, Atari, Apple and C-64. A realistic simulation with hi-res color graphics.

APBA Major League Players Baseball (Random House); $89.95; IBM PC, XT, AT, and PCjr with 128K. One of the newest in the line-up and possibly the most sophisticated. Licensed by the Major League Players' Association, this program makes you a manager par excellence. You can set up a farm team, draft players, send 'em back to the minors and—of course—play a winning season, if you have the stuff to make it in the majors.

Statis Pro Baseball (Avalon Hill); $35.00; Apple II series and C-64. Play an entire season using real teams from the past. Also available: complete line-ups of 1956, 1959, 1961, 1983 and 1984 teams.

Pro Manager (Avalon Hill); $35.00; IBM PC, XT and PCjr with 128K, double-sided disk drive. Manage teams from the 1984 National and American Leagues, and see if you can change history. Or import some the game's past greats and see how they perform on artificial turf.

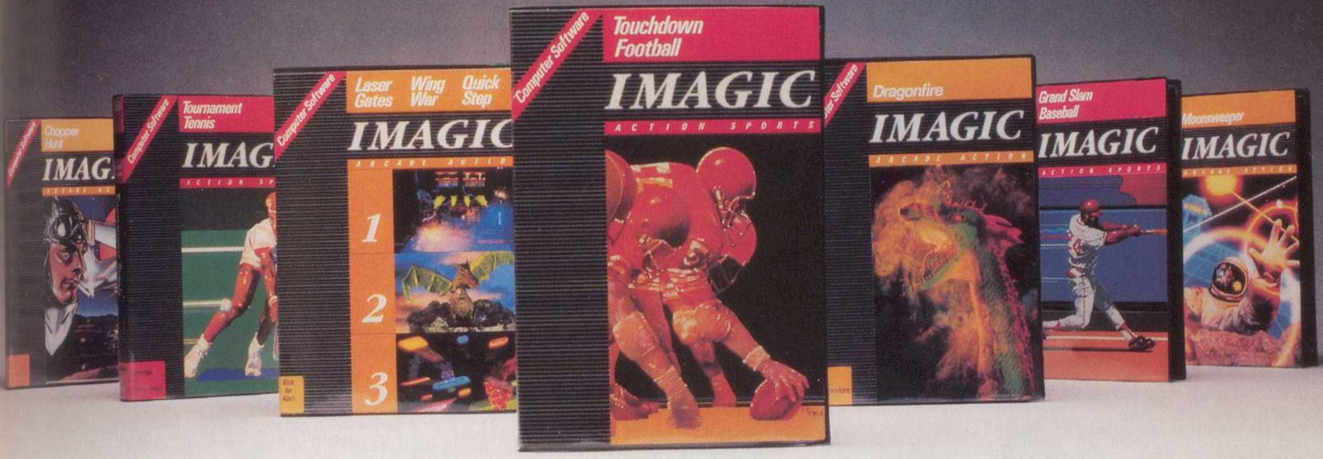
Grand Slam Baseball (Imagic); $34.95; PCjr. Computer shifts perspective between the home plate umpire and the pressbox, so you can monitor the infield and outfield plays simultaneously. Realistic scoreboard with news and box scores.

IQ Baseball (Davka); $24.95; C-64. A unique baseball trivia matchup.

MicroLeague Baseball (Micro League Sports Association); $39.95; Atari. Comes with over 20 "real-life" Major League teams, including the 1927 Yankees. It was a very good year.

Baseball Manager (Sydney); IBM, 128K. Pick your own team from a roster of 30 players, set your own defense in the field or signal the batter at the plate. Tony Kubek likes this one.

BUY IT ON THE BEST AUTHORITY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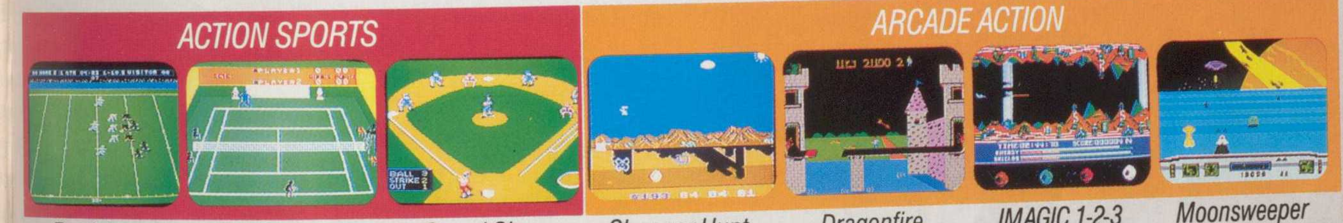
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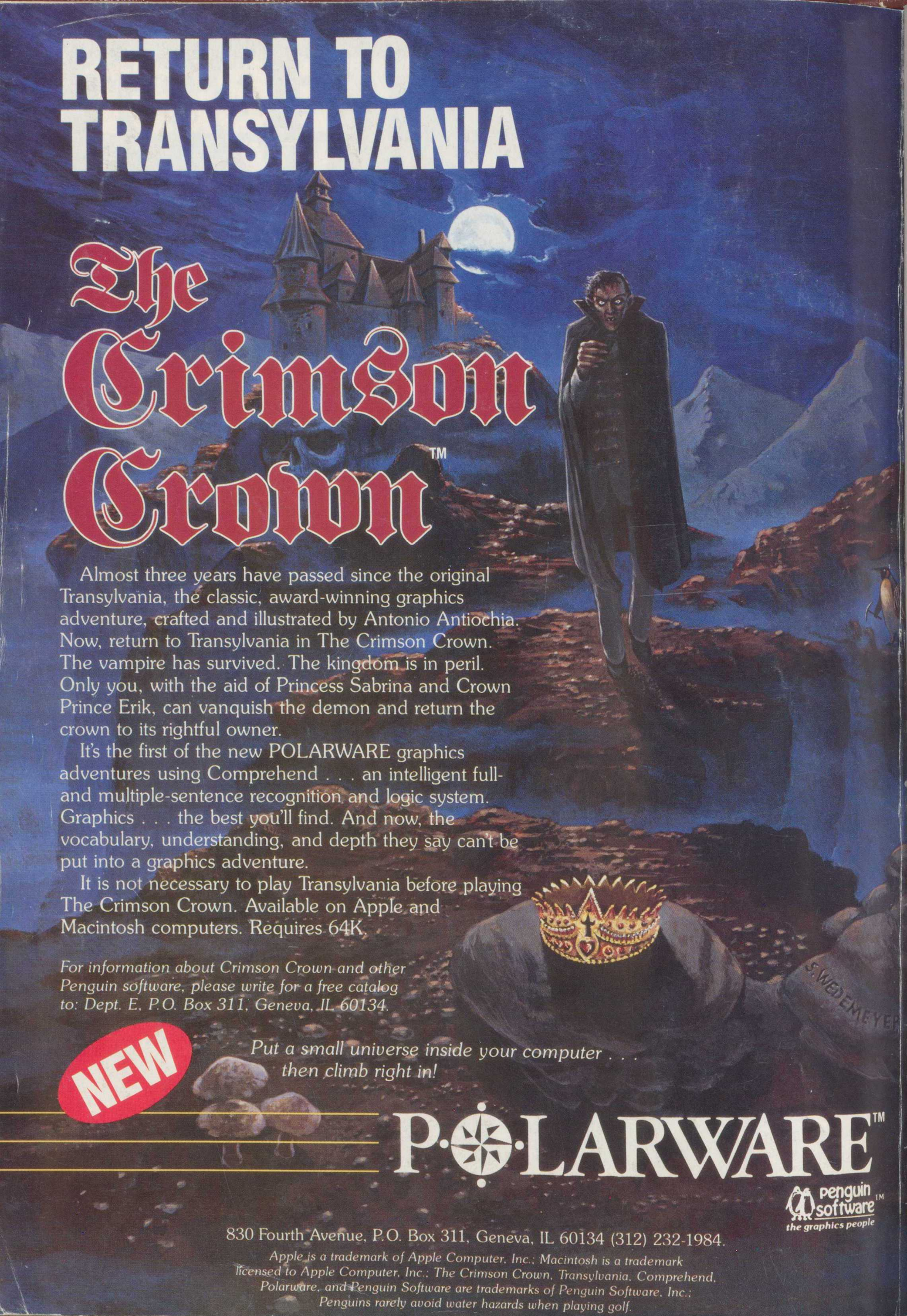

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